



جامعة الإمارات العربية المتحدة
United Arab Emirates University

UAEU Faculty of Medicine
and Health Sciences

2009

Research Publications & Research Profiles

Office of the Associate Dean for Research
and Graduate Studies



PRODUCTION CREDITS

Editor:

Prof Wim Lammers

Secretarial Management:

Mr P Rajagopalan

Graphic Design:

Ms Ivanna Lizarriturri,
with gratitude for the collaboration
of Ms Adriana Khazki

Graphic Assistant:

Ms Shaikha Al Mazrouei

Photography:

Mr Ashok Prasad

Cover photograph:

"A laparoscopic procedure at Tawam Hospital"
by Ashok Prasad, December 2009

Inside photographs:

Research images provided by the individual researchers
DNA strands: ©iStockphoto.com/Mark Evans



UAEU

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

Printed by Publication Department,
UAE University

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Preface

This is the 19th yearly report on Research Publications and Research Profiles for the Faculty of Medicine & Health Sciences, United Arab Emirates University. This volume is a continuation of a series of annual reports, dating back to our very first report in 1991.

As usual, every year, we try to upgrade and maintain the quality of this directory and this year is no exception. We have continued to include the Departmental Profiles and the Reports from the Research Priority Groups, including a report on Student Medical Research.

We have also kept the design of last year's booklet. As you may remember, our faculty's Media Center had developed last year a new design for our booklet. As this seemed to have been met with general approval (and even a few compliments!), in this edition they have continued with this design which provides for a uniform style and a consistent use of visual elements. With the new layout it is now easier to identify chapters, sections and text categories.

As always, it is a pleasure to thank the production team, who have put this report together. Ms Ivanna Lizarriturri was the Graphic Designer, literally from front to back cover. Ms Shaikha Butti transformed all submissions into our in-house style using the latest InDesign software. Mr Rajagopalan, as always, took care of editing the initial departmental contributions and the communication between all parties and Mr Ashook provided the numerous photographs.

Dr W Lammers
Editor

Dean's Message

It gives me great pleasure to welcome you to the Faculty of Medicine and Health Sciences (FMHS) Research Publications 2009.

FMHS researchers continued to make important contributions to the biomedical, community and clinical literature during 2009 and I congratulate all faculty who have contributed to this very high level of research productivity. While it is customary to acknowledge the excellent efforts of the Principal Investigator of each publication, I would like to also recognize the support team. Co-investigators, graduate students, medical students, technical staff, secretarial and support staff, volunteers, and patient subjects in clinical studies, all collaborate and cooperate to make the research possible. We are grateful to all of them for their contributions to the research successes at FMHS.

Our dedicated students and their research mentors, both faculty and staff, should be suitably proud of their continued high level of achievement during 2009. Their efforts certainly paid off in the recent GCC Medical Students Conference at King Abdulaziz University, Jeddah, KSA where our students won prestigious prizes for oral and poster presentations.

FMHS Research Priority Groups relevant to the UAE community stimulate major research conferences which are attended by international researchers in addition to participants from the region and the nation. UAEU graduate students, residents, research fellows and clinical colleagues from local hospitals are participating to a greater extent with oral presentations and posters which are of international standards. The Research Priority Groups at the FMHS (Genetics & Developmental Diseases, Trauma & Road Traffic Accidents, Cancer Biology & Malignancies Therapy, Neurosciences & Mental Health, Immunoregulation & Infectious Diseases, Diabetes and Cardiovascular Diseases, Environmental Health & Community) remain at the forefront of addressing the health concerns of the nation.

At the instigation of His Excellency the Chancellor Sheikh Nahayan Mubarak Al Nahayan, the UAE University is concentrating increasing efforts on high quality research. At the FMHS

we are blessed and encouraged by senior administration and remain committed to carry this challenge to further develop our research capabilities and output.

Grant sponsorship remains a much-sought commodity. Our steadfast benefactors include:

- *Sheikh Hamdan Awards for Medical Science*
- *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*
- *Harvard International - Genetics*
- *Children Research Foundation (Thrasher Research Fund), USA - Vitamin Deficiency*
- *Satigen - Diabetes*
- *Sonisite - Trauma*
- *Red Crescent - Trauma*
- *Abu Dhabi Environment Agency with North Carolina University - Environmental Health*
- *University of California - Genetics*
- *HAAD - Occupational Health*
- *Abu Dhabi Food Authority - Dates & Diabetes*
- *ICGEB - Genetics & Cancer*

We are most indebted for their ongoing support of our research. In this challenging global financial crisis which has put constraints on our growth, I am impressed by the continued high-quality output of our dedicated researchers. Congratulations and thank you.

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

Foreword from the Associate Dean for Research & Graduate Studies

This research profile attests to the contribution and academic endeavour of faculty and staff members of the FMHS.

We maintain a 19 year old tradition which has kept the extramural community aware of the contributions of the FMHS to knowledge, and to the nation. Through our research productivity, presentations at international conferences, and other scholarly activity we do contribute to the wealth of the nation and this publication presents ourselves and our achievements under a shining light.

This level of productivity can only be achieved in a progressive and a cooperative environment. At the Office of Research and Graduate Studies we strive to provide such an environment. This is achieved by allocating resources wisely, and providing and supporting research facilities. These include provision of research support such as the imaging unit, the analytical laboratory, the animal holding facility, the central research store, and the core equipment resource. Additionally, through transparency we have enabled ourselves to be open to constructive criticism and faculty-wide feedback which in the long term, we feel, provides an “accountable” environment focused on enhancing research productivity.

In the past year, the Provost, Dr W Rory Hume, has actively implemented the vision of His Excellency the Chancellor Sheikh Nahayan Mubarak Al Nahayan which identified the UAEU as the flagship university of the UAE where high-quality research output is a priority. The ongoing support of the offices of the UAE University Research Affairs, led by Her Excellency Dr Maitha Al Shamsi, has provided an invaluable resource to the FMHS efforts to bring the Chancellor’s view to fruition.

As always, we are indebted to the sponsors who enable the continuation of our research efforts. Without these benefactors, our researchers would be unable to continue their impressive productivity level nor make such effective presentations at major research conferences held internationally and locally.

The Faculty of Medicine and Health Sciences Research Publications 2009 highlights our scientific investigators and the breadth of our research and thereby enhances the scientific reputation of the Faculty of Medicine and Health Sciences, the United Arab Emirates University and the nation. Congratulations.

Dr Sehamuddin Galadari
Associate Dean for Research & Graduate Studies

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

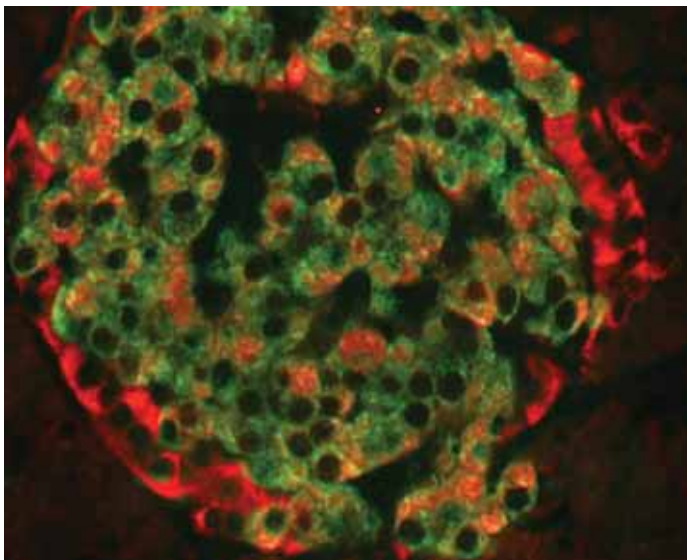


Research Profile

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.

Research by

Ernest Adeghate's major research interest is on the effect of pancreas transplantation on the 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 visfatin is expressed in pancreatic beta cell. The expression of visfatin is reduced significantly in pancreatic islet cells of diabetic rats compared to control. Visfatin is an adipose tissue hormone implicated in the pathogenesis of diabetes mellitus and its complications. The presence of visfatin in islet cells shows that visfatin may have a role to play in the metabolism of insulin.



Professor & Chair:

Prof E Adeghate

Professor:

Prof K Bagnall

Prof G Buzzell

Prof S Karam

Prof DE Lorke

Associate Professor:

Dr E Mensah-Brown

Dr S Shehab

Medical Research Specialist:

Mr RS Hameed

Dr RR John

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 visfatin in the pancreas of Goto-Kakizaki rat

Immunofluorescence micrograph of the islet of Langerhans, showing visfatin (red) and insulin (green) immunopositive cells in GK rat. Pancreatic islet cells containing both visfatin and insulin are yellow. Magnification: X 400.

Keith M. Bagnall's research has focus 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.

Gerald R. Buzzell's research continues on three fronts: 1. Studies on the nictitans complex of the camel; 2. Studies on the pleural curtain of the camel; and 3. Scanning electron microscopy of larval *Habronema muscae*, a nematode parasite of flies which is transmitted to horses. These studies are being carried out in collaboration with scientists at the Central Veterinary Research Laboratory, Dubai.

Sherif M. Karam's main research focuses on some fundamental aspects of stem cell biology. The gastric gland is used as a model system to study factors that control stem cell proliferation, differentiation and migration in health and disease (cancer). Also, the epithelial progenitor cells of the mammary gland are investigated during carcinogenesis.

Dietrich E. Lorke's main research activities are in the area of neuroembryology. He studies developmental changes in the expression of neurotransmitters (GABA, catecholamines), 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's research interests have been on the role of cytokines in chronic autoimmune inflammation in type 1 diabetes using the model of multiple low doses of streptozotocin and experimental allergic encephalomyelitis a rodent model of multiple sclerosis. His recent interests have been on how galectin-3 and T1/ST2 genes drive organ specific autoimmune process towards a Th1/Th17 axis.

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 pain 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

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Al Saeed AMS, Marzouqi FMA, Hameed RS, Adeghate E, Howarth FC. (2009). The effect of heavy exercise program on the distribution of pancreatic islet cells in the streptozotocin-induced diabetic rat. *Journal of Medical Sciences* 2:130.

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Mudhafar A, Al Hashemi A, Al Afifi O, Al Merri S, Kalasz H, Adeghate E Nurulain S. (2009). Pharmacokinetics of the blood brain barrier penetration of pyridinium aldoxime. *Journal of Medical Sciences* 2:46.

Proceedings, Conferences, Invited Lectures, Web Sites and Others

Adeghate E, Al Shamsi T, Amin A.

(2009). The effect of visfatin and adiponectin on the metabolic parameters of an animal model of Type 2 diabetes. 10th UAEU Annual Research Conference, April 13-16.

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Al-Marzoqee F, Al-Awadhi H, John R, Bensen R, Vincze A, Branicki F, Karam SM. (2009). Gastric cancer – are stem cells involved? SEHA Research Conference, Al-Ain, UAE.

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Rahman MA, Karam SM, Williams GT. (2009). Gastric parietal cell vacuolation mimicking signet ring cell carcinoma. The Joint Meeting of the British Division of the International Academy of Pathology and The Pathological Society of Great Britain and Ireland, Cardiff, UK.

Schuster RK, Sivakumar S, Kinne J, Babiker H, Traversa D, Buzzell GR. (2009). Habronematosis due to *Habronema muscae* in a stable in the United Arab Emirates. World Association for the Advancement of Veterinary Parasitology, Calgary, Canada.

Shehab SAS. (2009). Acute and chronic sectioning of fifth lumbar spinal nerve has equivalent effects on the primary afferents of sciatic nerve in rat spinal cord. Society for Neuroscience held in Chicago, USA.

Tomassetto C, Rio MC, Karam SM. (2009). TFF1 controls differentiation of gastric parietal cell lineage. The 6th International Conference on Trefoil Family Factors, Bristol, UK.

RESEARCH GRANTS

FMHS Research Grants

Prof E Adeghate.
Spexin: Cellular distribution and effect in the endocrine pancreas of streptozotocin-induced diabetic rats.

Prof KM Bagnall.
Behaviour of human chondrocytes in relation to cell density during passaging and scaffold environment.

Prof SM Karam.
Control of gastric stem cells by trefoil factor 1.

Prof DE Lorke [PI] Cabezudo M,

Hasan M, Mechkarska M, Azim-mullah S.
Neuro-Immune Regulation by Organophosphate Compounds.

UAEU Individual Grants

Prof E Adeghate
The effect of incretin on gene expression in pancreatic islet cells in diabetes mellitus.

Prof GR Buzzell
The pleura and pleural curtain of the dromedary.

Prof DE Lorke [PI] Oz M,
N-arachidonyl glycine modulation of nicotinic acetylcholine receptors expressed in xenopus oocytes

UAEU Interdisciplinary Grants

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

Prof SM Karam
Expression of trefoil factors in gliomas

Sheikh Hamdan Award for Medical Sciences

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
Prof SM Karam.

Stem cell genes and gastric carcinogenesis

The Michael J. Fox Foundation for Parkinson's Research

Dr S Shehab.
Development of Lewy bodies MRI imaging agents for the early diagnosis of Parkinson's disease and related disorder. (With Drs O. El-Agnaf and Van der Linden)



2009 Anatomy



Standing left to right: WAJ Wannji, E Adeghate, G Buzzell, S Shehab, M Madathil, D Lorke, RS Hameed, S Singh, TV Basheer, E Mensah-Brown, S Tariq, S Karam
Seated left to right: A Rifaat, R John, L Ravindranathan, K Bagnall, F Babiker, G Khoder, F Al Marzouqi, Joy G

<http://www.fmhs.uaeu.ac.ae/Departments/Anatomy>. Tel: 7672000 / Fax: 7672033



Department of Biochemistry

Research Profile

Professor & Chair:
Prof JM Conlon
Professor:
Prof OMA El-Agnaf
Prof H Raza
Associate Professor:
Dr AH Al-Marzouqi
Dr S Galadari
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 2009 saw the promotion of Dr Omar El-Agnaf to Professor and Dr Ahmed Al-Marzouqi to Associate Professor. Dr Sehamuddin Galadari continued in his role as Associate Dean for Research and Graduate Studies.

Neuromodulation of the immune response to pathogens (Dr. M.J. Fernandez-Cabezudo)

My main research interest is to investigate the mechanism by which organophosphorus compounds (OPCs) modulate the immune response. It is well known that the toxic effects of the OPCs are due to inhibition of acetylcholinesterase (AChE) in the central and peripheral nervous systems, with a consequent increase in the levels of the neurotransmitter acetylcholine (ACh) which leads to cholinergic hyperstimulation. We have recently demonstrated that sub-chronic doses of paraoxon, the bioactive metabolite of the OPC parathion and a potent inhibitor of AChE, had a dramatic influence on the immune system and rendered the mice resistant to experimental infections. We are currently analyzing the functional link between the nervous and immune systems.

Another area of interest in my laboratory is to identify novel biomarkers in cancer cells. Through a recently funded 3-year grant from the Terry Fox Foundation, we have embarked on a project to

characterize the expression of a novel intracellular protein, known to regulate gene methylation and activation, in human breast cancers and correlate that with resistance to chemotherapy.

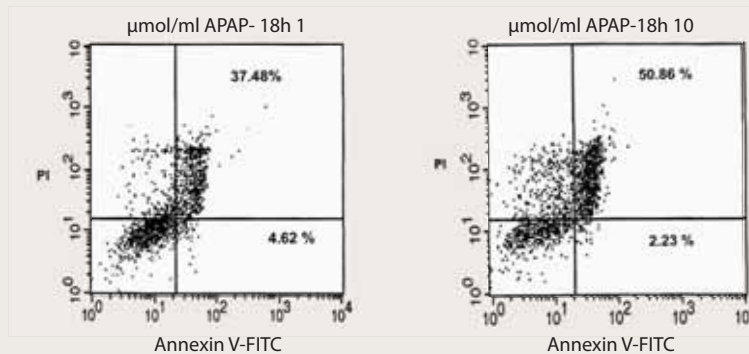
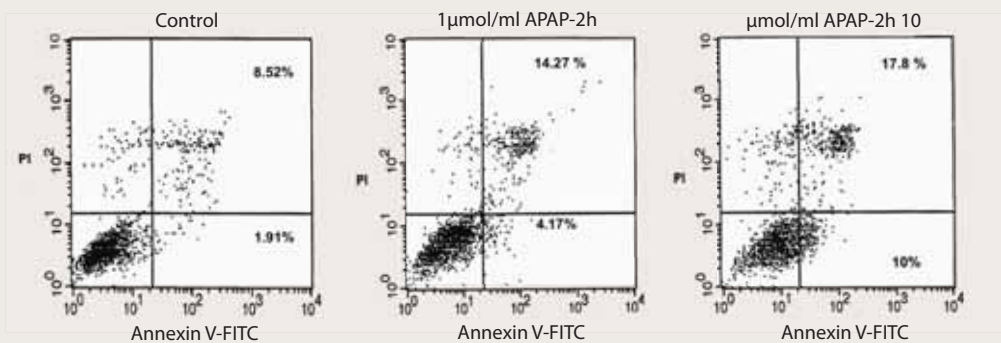
Research Highlights: Our research has shown that inhibition of AChE enhanced animal survival following infection with a bacterial pathogen. The enhanced resistance to infection occurs in a dose-dependent fashion and was correlated with an efficient control of bacterial proliferation in target organs. Immunologically, inhibition of AChE enabled the animals to mount a more effective inflammatory anti-microbial response and to secrete higher levels of interleukin-12, a key T helper type 1-promoting cytokine.

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

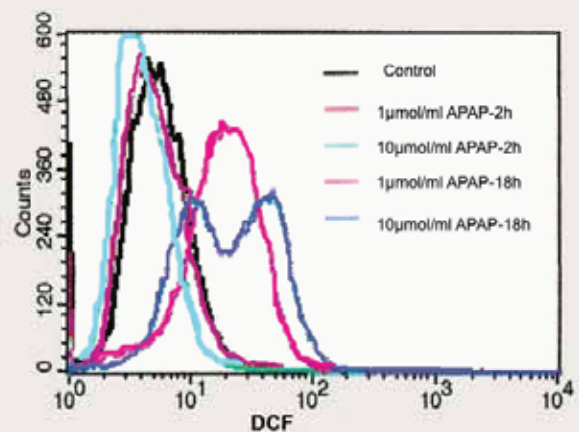
My research programme is mainly focused on mitochondrial dysfunction in oxidative stress conditions caused by chemicals, drugs, diseases and toxicity. I am using in vivo and in vitro models in these studies which involve interdepartmental and international collaborations. In addition, I am investigating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

Research Highlights: In our recent studies, we have demonstrated that increased oxidative stress alters mitochondrial respiratory and redox functions. A graduate student, Ms T. Al-Belloshi

APOPTOSIS - FLOW CYTOMETRY



Time and dose-dependent Acetaminophen (APAP)-induced apoptosis in murine macrophages



Time and dose-dependent production of reactive oxygen species in macrophages by acetaminophen

(MSc Biomedical Sciences, Pharmacology Track) has shown that acetaminophen, a commonly used anti analgesic and antipyretic drug, induces apoptosis in murine macrophages by altering mitochondrial glutathione-dependent redox metabolism, inhibiting the activities of respiratory complexes, and activating cytochrome *c*/caspase-dependent apoptosis. The work has been presented in a thesis dissertation and was successfully defended for the award of the first MSc degree from FMHS.

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

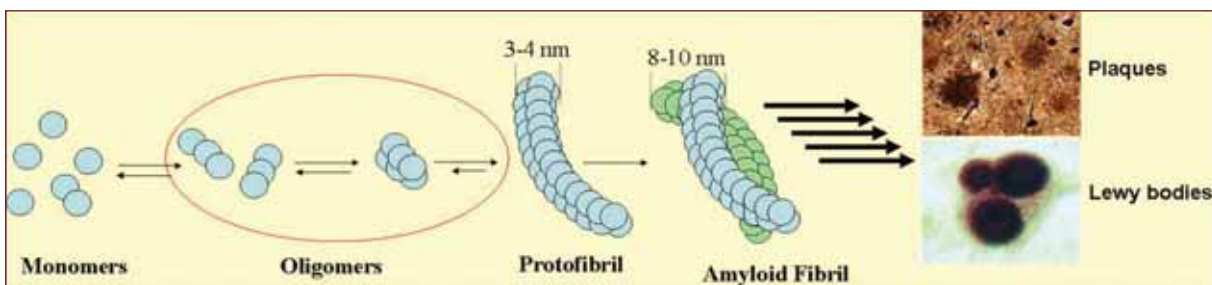
Pathological studies in human neurodegenerative diseases such as Alzheimer's disease (AD), Parkinson's disease (PD), dementia with Lewy bodies (DLB), the prion dementias (e.g. mad cow disease and its equivalent, CJD, in humans), British dementia and Huntington's disease, have revealed abundant protein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

Research Highlights: Current research efforts in the laboratory cover the following topics: (1) Elucidating the mechanism of protein aggregation and deposition and their potential link to neurodegeneration and cell loss; (2) Developing novel techniques for detecting amyloid aggregates, particularly in their early stages; (3) Designing peptides and small molecule inhibitors of α -synuclein and β -amyloid aggregation and toxicity as potential novel therapeutics for

Parkinson's disease and Alzheimer's disease respectively; (4) Discovering novel biological markers for Alzheimer's and Parkinson's disease; (5) Developing novel MRI- and PET-imaging compounds for Parkinson's disease. These projects are supported by several international funding agencies and foundations, including Hamdan Foundation for Medical Research (Dubai), UAE University (Al Ain), Parkinson's disease Foundation (NY), and Michael J Fox Foundation for Parkinson's Research (NY).

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

Thus, we are also interested in studying how chromatin misregulation contributes to cancer development and could be helpful in finding potential cures for it in the future.

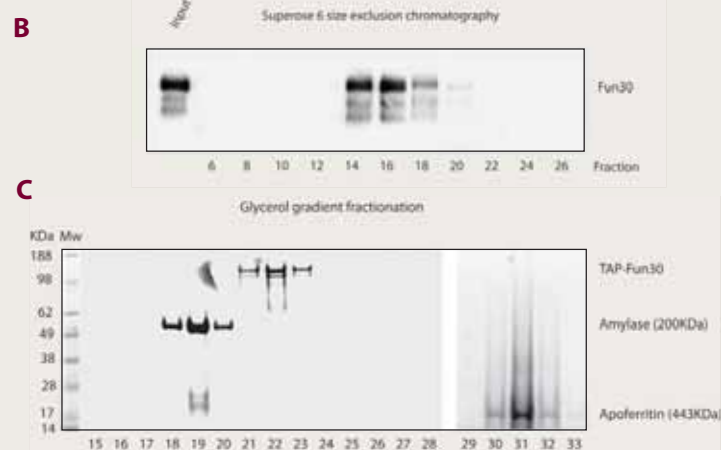
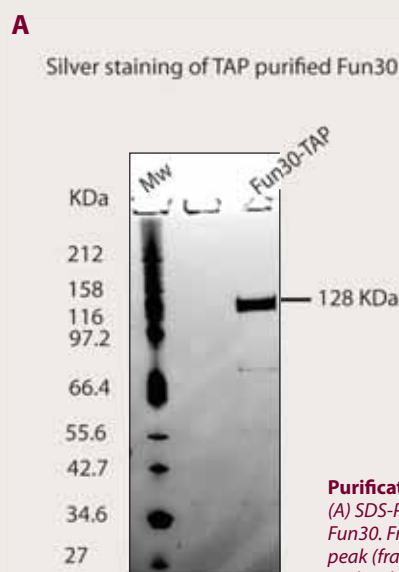
Research highlights: The three areas of research focus in my laboratory during 2009 were:

- 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 (Dr. S. Galadari)

Cellular homeostasis is dependent upon an array of intracellular communication pathways. Cells need to receive signals and send signals, and in that way they communicate with one another at the molecular level. This is achieved by an intricate network of enzymatically regulated biochemical signal pathways prone to regulation by specific messages. If one or more of these enzymes are abrogated or over subscribed, then disease is set. Indeed, this is what happens at the molecular level of diseases such as cancer, where normal cell growth runs out of control, either due to over subscription of the growth signaling pathway or under subscription of cell death signaling pathway, both of which may occur following deregulated activity of some enzymes in that pathway, thus leading to tumor formation. Our research effort is focused on studying the following:



Purification of the Fun30 complex.

(A) SDS-PAGE and silver staining of TAP-purified Fun30. (B) Superose-6 chromatography of TAP-purified Fun30. Fractions containing Fun30 were detected by Western blotting with anti-TAP antibody. The Fun30 peak (fraction 16) corresponds to a molecular weight of 250 kDa calculated from a standard curve of molecular weight standards run on the same column (not shown). (C) Fun30 was resolved by 10%-40% glycerol gradient sedimentation together with amylase and apoferritin as molecular weight markers. Coomassie Blue staining following SDS page of the fractions indicated where each protein elutes. The elution profile for Fun30 peaked in fraction 22 consistent with a complex of about 250 kDa.

Sphingolipids 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 molecules in sphingolipid metabolism — in effect function as tumor-suppressor lipids, inducing antiproliferative, senescence, apoptotic and autophagocytic responses in various cancer cells. Conversely, S1P induces responses that, on aggregate, render S1P a tumor-promoting lipid.

Ceramidases hydrolyze ceramide into sphingosine and fatty acid. After its generation sphingosine is phosphorylated to form sphingosine-1-phosphate (S1P) through the action of sphingosine kinase. Because the phosphorylation of sphingosine is the only pathway for the formation of S1P, cellular S1P is highly dependent on the availability of sphingosine generated by ceramidases, suggesting that ceramidases are critical in regulating not only the hydrolysis of ceramide but also the generation of both sphingosine and S1P in cells. Therefore, the action of ceramidase leads to an alteration in cellular ceramide, sphingosine, and S1P, thereby controlling cellular responses mediated by these bioactive lipids.

Ceramide mediates the regulation of growth

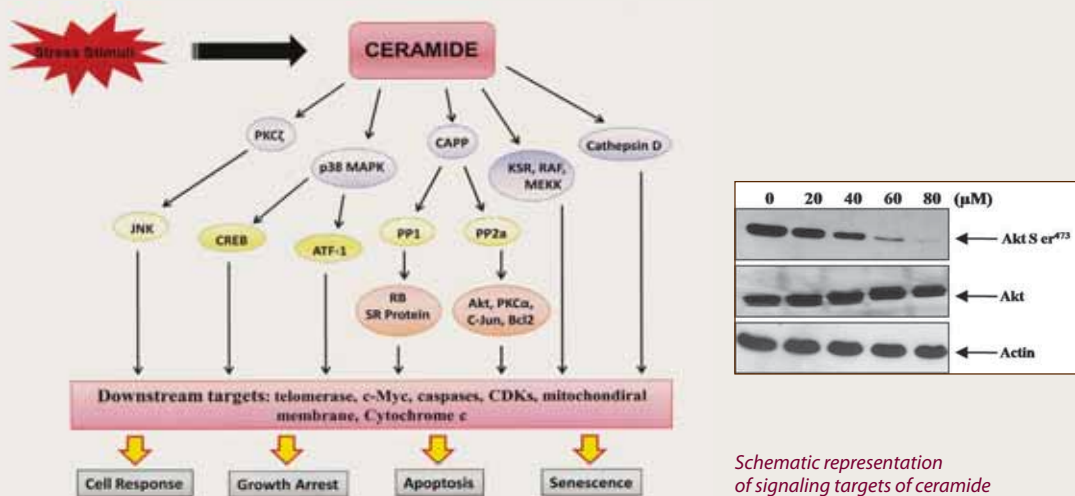
arrest, senescence, and/or apoptosis. Some of these biological functions might be controlled through novel SL-protein interactions. Most frequently, these direct targets of ceramide constitute protein phosphatases and kinases that regulate important signaling pathways in cancer, such as Akt, protein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

Our laboratory focuses mainly on the following research areas:

1. Purification and biochemical characterization of sphingolipid metabolizing enzymes such as neutral ceramidase isoforms from different species.
2. Role of signaling pathways in Sphingosine and ceramide induced apoptosis in human leukemic cells.
3. Investigating ceramide mediated signal transduction in phytochemical-induced apoptosis in human cancer cells.

Ceramide induces the dephosphorylation of Akt at Ser473 and leads to apoptosis in Jurkat cells. Jurkat cells incubated with the indicated concentrations of C6-Cer for 6h. Cells were lysed and were fractionated by SDS-PAGE. Western blots were probed with antibodies specific for phospho-Akt (Ser473) and Akt.

Phytochemicals are naturally occurring compounds that are extracted from fruits, vegetables, and herbs. Increasingly, evidence is being



Schematic representation of signaling targets of ceramide

provided as to their importance in health. To that end, we are investigating the effects of different natural products on lipid signaling pathways involved in diseases such as cancer and diabetes.

Research Highlight: We have been investigating the role of ceramide in UVC induced cellular signaling. Recently, we have identified that UVC-induced apoptosis in some cell lines is independent of the Stress Activated Protein Kinases and p53 signaling pathways.

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 cytolytic 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 midwife toad *Alytes obstetricans* (Laurenti, 1768) is a small predominantly nocturnal amphibian that is best known for its parental care behaviour. Once the oocytes have been fertilized, the male attaches the egg strings to his skin which are then kept moist and protected against predators until the newly hatched tadpoles are released into water. The species was once widely distributed in western Europe but populations have declined precipitously due to habitat loss, introduction of predator fish into their breeding waters, and diseases such as chytridiomycosis. Two novel families of structurally related peptides with differential antimicrobial activity were isolated from norepinephrine-stimulated skin secretions from *A. obstetricans* that have been termed alyteserin-1 and alyteserin-2. The alyteserin-1 peptides show potent growth-inhibitory activity against Gram-negative bacteria, including multidrug-resistant strains of the opportunistic pathogen *Acinetobacter baumannii*, whereas the alyteserin-2 peptides are more active against Gram-positive bacteria.



A specimen of the midwife toad *Alytes obstetricans* with attached oocytes

The alyteserin family of antimicrobial peptides isolated from skin secretions of the midwife toad

Alyteserin-1a
GLKDIFKAGLGLSVKGIAAHVAN.NH2

Alyteserin-1b
GLKEIFKAGLGLSVKGIAAHVAN.NH2

Alyteserin-1c
GLKEIFKAGLGLSVKGIAAHVAS.NH2

Alyteserin-1d
GLKDIFKAGLGLSVKNIAAHVAN.NH2

Alyteserin-2a
ILGKLLSTAAGLLSNL.NH2

Alyteserin-2b
ILGAILPLVSGLLSNKL.NH2

Alyteserin-2c
ILGAILPLVSGLLSSKL.NH2

Articles in Peer-reviewed Journals

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Chathoth S, Thayyullathil F, Patel M, Hago AK, Galadari S (2009). UVC-induced apoptosis in Dubca cells is independent of JNK activation and p53 (Ser-15) phosphorylation. *Biochemical and Biophysical Research Communications* 383; 426-432.

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Conlon JM, Ahmed E, Condamine E. (2009). Antimicrobial properties of brevinin-2-related peptide (B2RP) and its analogs: Efficacy against multidrug-resistant *Acinetobacter baumannii*. *Chemical Biology and Drug Design* 74; 488-493.

Conlon JM, Ahmed E, Coquet L, Jouenne T, Leprince J, Vaudry H, King JD. (2009). Peptides with potent cytolytic activity from the skin secretions of the North American leopard frogs, *Lithobates blairi* and *Lithobates yavapaiensis*. *Toxicology* 53; 699-705.

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Al-Belooshi T., John A, Al Otaiba A, Raza H (2009) Acetaminophen induced toxicity in murine macrophages. 10th Annual UAEU Research Conference, Al Ain, UAE.

Al-Ketbi, M., G. Bashir, M. Mechkarska, M.J. Fernandez-Cabezudo and B.K. al-Ramadi (2009) Recombinant bacterial strains expressing

TNF- α or IFN- γ are potent inducers of innate immune response in peritoneal macrophages. 6th International Scientific for Medical Students in the GCC countries, Al-Ain, UAE.

Al-Ramadi, B.K., H. El-Hasasna, M.J. Fernandez-Cabezudo, G. Bashir, and S. Chouaib (2009) Oral administration of TNF α -expressing *Salmonella* inhibits tumor growth and prolongs host survival independent of intra-tumoral bacterial accumulation. 2nd European Congress of Immunology, Berlin, Germany.

Al-Shehhi, F.F., M.A. Naqi, M. Mechkarska, B.K. al-Ramadi and M.J. Fernandez-Cabezudo (2009) Role of inflammasome in macrophage modulation by cytokine expressing bacteria. 6th International Scientific Conference for Medical Students in the GCC countries, Al-Ain, UAE.

Conlon, JM, Condamine E. (2009). A unusual glycine-leucine-rich peptide with conformational flexibility isolated from skin secretions of the frog *Leptodactylus laticeps*. 10th Annual UAEU Research Conference, Al-Ain, UAE.

Conlon, J.M. (2009) Antimicrobial peptides from frog skin – why are they really there ? 3rd Asia-Pacific International Peptide Symposium, Jeju Islan, Korea.

Conlon JM (2009) Antimicrobial peptides from frog skin – are they neuropeptides as well? 3rd Mediterranean Conference of Neuroscience, Alexandria, Egypt.

Conlon JM (2009) Multifunctional peptides in frog skin secretions. *Seminare am Wilhelmineberg*, Vienna, Austria.

Emadi F, Awad S, Hassan AH. (2009). The anti-cancer effects of Eugenol, a compound in the clove extract. The 10th Annual UAEU Research Conference, Al-Ain, UAE.

Fernandez-Cabezudo, M.J., S. Azimullah, M. Mechkarska, S.M. Nurulain, D.E. Lorke, M.Y. Hasan,

G.A. Petroianu and B.K. al-Ramadi (2009) Exposure to paraoxon, an organophosphate compound, regulates the immune response in mice. 10th Annual UAEU Research Conference, Al Ain, UAE.

Fernandez-Cabezudo, M.J., S. Azimullah, M. Mechkarska, D.E. Lorke, M.Y. Hasan, G.A. Petroianu and B.K. al-Ramadi (2009) Neuroimmune regulation of susceptibility to bacterial infection: modulation through an acetylcholine-dependent mechanism . 2nd European Congress of Immunology. Berlin, Germany.

Galadari S. (2009) Reverse Ceramidase activity of human neutral ceramidase. 10th Annual Research Conference, Al Ain. UAE.

Hassan AH. (2009). Mechanisms of Gene Regulation in Chromatin. The 1st Genetic and Biotechnology Conference, Dubai, UAE.

Raza H, Al-Belooshi T, John A, Otaiba A (2009) Acetaminophen-induced apoptosis and alterations in mitochondrial functions in macrophages. 100th Annual Meeting of American Association for Cancer Research, Denver, Co. USA.



RESEARCH GRANTS

FMHS Research Grants

Prof JM. Conlon
Characterization of novel antimicrobial peptides from skin secretions of the midwife toad, *Alytes obstetricans*.

Dr MJ Fernandez-Cabezudo.
Neuroimmune regulation by organophosphate compounds.

Dr S Galadari
Investigation of UVC irradiation and apoptosis signalling in Dubca Cells

Prof H. Raza
Non-steroidal anti-inflammatory drugs (NSAIDs) induced sensitization of human hepatoma HepG2 cells.

UAEU Individual Grants

Dr MJ Fernandez-Cabezudo
Role of MyD88 protein in the activation of phagocytic cells by interferon-gamma (IFN- γ)-expressing bacteria.

Prof H Raza
Comparison of drug and redox/respiratory metabolisms in camel liver with other mammalian species.

UAEU Interdisciplinary Grants

Prof OMA El-Agnaf
Testing novel inhibitors of alpha-synuclein oligomerization and toxicity as a novel treatment for Parkinson's and related disorders".

Terry Fox Fund for Cancer Research

Dr Galadari
Characterization of curcumin sig-

nal transduction and apoptosis as possible target for chemotherapy

Dr AH Al-Marzouqi.
Investigating the mechanisms of action of the Snf2-homolog protein Fun30.

Dr MJ Fernandez-Cabezudo
Novel resistance biomarkers in human breast cancer.

Emirates Foundation Grant

Dr S Galadari
Purification and characterization of a novel more hydrophobic isoform of N-acylsphingosine amidohydrolase

The Michael J. Fox Foundation for Parkinson's Research

Prof OMA El-Agnaf
A strategy to develop a radiotracer targeting alpha-synuclein.

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

Dubai Harvard Foundation for Medical Research, Dubai, UAE

Dr AH Al-Marzouqi
Biochemical characterization and functional analysis of chromatin-remodeling proteins in gene activation and silencing.

International Center for Genetic Engineering and Biotechnology (ICGEB)

Dr AH Al-Marzouqi
Studying chromatin-modifying proteins in transcription regulation.



Biochemistry



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

<http://www.fmhs.uaeu.ac.ae/Departments/Biochemistry> Tel: 7672000 / Fax: 7672033

Department of Community Medicine



Department Profile

The Department of Community Medicine has a mission to train health professionals to protect and improve the health of the population of the United Arab Emirates. We have therefore targeted our research activities on specific areas in public health such as acute conditions (e.g. work, home, and transportation injuries), and chronic diseases (e.g. diabetes, hypertension and cardiovascular disorders). Other research initiatives with special relevance to the United Arab Emirates include heat stress, occupational health and safety, and infections.

Our academic staff have considerable research experience and expertise from different disciplines, including Epidemiology & Biostatistics, Public Health and preventive medicine, occupational health and environmental hygiene, safety science and health protection. The multidisciplinary research teams work with colleagues from other clinical and basic science departments in the Faculty of Medicine and Health Sciences, and also with clinicians from local hospitals (e.g. Tawam-Johns Hopkins hospital, Al-Ain Hospital) and staff of health authorities (e.g. Health Authority of Abu Dhabi, and Health Authority of Dubai). In addition, our biostatisticians provide advice on other research projects regarding research design, data collection, analysis and presentation. Our research staff also serve as expert members on advisory panels for local and international organizations. The Department continues to be involved in scientific input to the UAEU collaborative Road Safety Research Centre (RTSRC) which undertakes research on road traffic injuries within the UAE.

Community medicine researchers have been instrumental in the planning of the scientific programme for a major international conference on Global Health to be held in the first week of the new year (2010). The conference will include invited presentations,

Professor & Chair:

Prof. T C Aw

Professor:

Prof N Nagelkerke

Associate Professor:

Dr F Al Maskari

Dr R Bernsen

Dr I Blair

Dr M Grivna

Dr S Shah

Assistant Professor:

Dr J Schneider

Dr A Wheatley

Academic Assistant:

Dr M El Sadig

Medical Secretary:

Ms A Kaljee

Office Assistant:

Mr Jamal CK

research findings, and position papers. The papers presented will be published in a forthcoming issue of a peer-reviewed journal (The Asia-Pacific Journal of Public Health).

RESEARCH INTERESTS OF FACULTY AND STAFF (Alphabetical)

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

Prof. Tar-Ching Aw: US-Board certified in occupational medicine. He has a special interest in occupational toxicology, occupational risks to health-care workers, and training and education. Professor Aw is a member of the International Advisory board for the journal - Occupational Medicine (Oxford Journals). He is Principal investigator for the UAEU component of a UAE Indoor Air, Health & Nutrition Study (see project grants). He was also project officer for a HAAD (Health Authority of Abu Dhabi)-sponsored modified Delphi project which was conducted and completed in 2009. This project was to obtain stakeholder views on priorities for occupational health and safety in the UAE, and was novel in using an electronic audience response system to provide immediate feedback to participants.

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 specialist physician 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 the molecular epidemiology of Staphylococcal aureus infection, occupational health aspects of tuberculosis control, and the effects of chronic illness on the life of the family in the UAE.

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 by the University of North Carolina and for which the Department is a sub-contractor.

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. 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 a number of projects which resulted in peer reviewed publications during 2009.

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. 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. Currently engaged in projects

concerned with the health, safety and welfare of migrant workers in the UAE.

ACADEMIC COLLABORATION

Visiting Professors and research academics to the department of Community medicine this year include Prof. Ken Addley from the Faculty of Occupational Medicine, Royal College of Physicians (Ireland); Prof. John Harrison from Brunel University, UK., Dr. Denis D'Auria, Chief Examiner for the Faculty of Occupational Medicine, Ireland; and Dr. Rob Griffiths senior lecturer from Otago University, New Zealand. Professor Awang Bulgiba, Vice-Dean of the Faculty of Medicine, University of Malaya also visited our department to discuss research prospects and he presented a paper to faculty staff on medical education. Provost Rory Hume from UAE University has signed a memorandum of understanding for collaboration with his counterpart from the University of Malaya. In 2009, we managed to place our medical students for research projects at the University of Malaya.

RESEARCH TRAINING

The department provides training in research methodology focusing on field research on target populations, and data analysis and interpretation. The main target groups for research training are postgraduates, residents in Family and Community Medicine, and researchers interested in field epidemiology. Faculty members also supervise research projects for medical students serving their senior clerkship posting in our department. These postings require that students conduct relevant field research that can then be presented and published. Special workshops (e.g. on SPSS and other statistical techniques) have been conducted by our biostatisticians. A training course on spirometry was organized in 2009 jointly with Otago University (New Zealand), and with Professor John Harrison from Brunel University (UK). Updates on new research findings in occupational health have been prepared and discussed at special seminars and video conferences for occupational and environmental health professionals. These regular video-conferences have been organized as a real-time event linking the Faculty of Medicine and Health Sciences with the Faculty of Occupational Medicine, Royal College of Physicians (Ireland).

Senior Medical Student Clerkship Research Projects

Abdulrahman OMAM, Al Dhaheer ASM, Alkhateri HMM, Al Marzouqi AMHA, NourEldin NM. (2009). Prevalence and determinations of overweight and obesity among elementary school children in Al Ain, UAE. Supervisors: Shah S (Principal), Nagelkerke N.

Al Hammadi FM, Al Neaimi KRA, Dhanhani HSM. (2009). Prevalence of back pain and other musculoskeletal problems among FMHS medical students in UAE University, Al Ain. Supervisors: Shah S (Principal), Schneider J.

Al Houqani SSA, Al Kaabi SSM, Al Awadi AAM, Al Qaydi MAB, Ismail FYM, Baqer ZAH. (2009). Knowledge, attitude and practice of unpasteurized milk consumption amongst women in Al Ain, UAE. Supervisors: Blair I (Principal), Nagelkerke N.

Al Mahrami AMA, Al Neyadi MSM, Alyasi NHM, Al Kathiri OAA. (2009). Impact of Pandemic H1N1 Influenza on the behavior of UAE parents of primary school children in Al Ain city. Supervisors: Blair I (Principal), Shaban S.

Al Nuaimi NSR, Al-Ghas YSA, Al Owais AHR. (2009). Knowledge, attitude and practice toward HPV infection, immunization and cervical cancer among high school female students in Al Ain, UAE. Supervisors: Grivna M (Principal), Schneider J, Bernsen R.

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- Aw TC. (2009). Occupational Medicine – lessons learnt from history. Royal Australasian College of Physicians (RACP) Physicians Week 2009 conference, Sydney, Australia.
- Aw TC. (2009). Infection in the workplace. 2nd meeting of the Occupational Medicine Interest Group, Dubai, UAE.
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Barss P, Grivna M, Subait O, Al-Kuwaiti A, Al-Kuwaiti M, Al-Rahoomi A. (2009). Epidemiology of falls in a High-income Middle Eastern Country: An emergency department interview survey. The 18th International Conference on Safe Communities: Safety Policies as an Axis for Development, Cali Colombia.

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Wheatley A. (2009). The health and safety of migrant construction workers in the United Arab Emirates. 10th Annual UAEU Research Conference. UAE University, Al Ain, 13-16 April 2009.

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Zaman P, Shah SM, Jahan N. (2009). Prevalence and correlates of hypertension among women in mountain villages of Pakistan, the 6th International Scientific Conference for Medical Students in the GCC Countries, J Medical Sciences. 1(Suppl) 298.

RESEARCH GRANTS

FMHS Research Grants

Prof TC Aw [PI], Drs F Al-Maskari, J Schneider, M El-Sadig. Continuation of a 2-year research project on Developing a National Strategy for Environment and Health in the UAE. In conjunction with the University of North Carolina at Chapel Hill and RAND Corporation.

Dr J Schneider [PI], Prof N Nagelkerke, Drs I Blair, M Sheek-Hussein, S Shaban. A pilot survey of expatriate working conditions in Al Ain, UAE. Health Authority of Abu Dhabi (HAAD).

Dr SM Shah (PI), Profs H Saadi, AW TC, N Nagelkerke, Dr M El-Sadig. Chronic Diseases Prevention in Immigrants: Putting Cardiovascular Risk Factors on Surveillance Screen.



2009

Community Medicine



*Standing left to right: Dr Andrew Wheatley, Dr Michal Grivna, Prof Nico Nagelkerke, Dr Mohamed El Sadig, Dr John Schneider, Dr Syed Shah, Mr CK Jamal.
Seated left to right: Dr Ian Blair, Ms Rasha Alsadig, Dr Roos Bernsen, Prof Tar-Ching Aw (Chair)
Absent: Dr Fatma Al Maskari, Ms Arlene Kaljee*

[http://www.fmhs.uaeu.ac.ae/Departments/Community Medicine](http://www.fmhs.uaeu.ac.ae/Departments/Community%20Medicine) Tel: 7672000 / Fax: 7672033

Department of Family Medicine



Department Profile

The Department of Family Medicine is fortunate to be able to draw on the talents of a diverse, energetic and talented pool of faculty and staff for its teaching, service and research activities. The mission statement of our department integrates the discovery and propagation of knowledge important to clinical practice, education, and the organization of health care as a core task. In addition, our leadership roles in medical education and teaching clinical skills complement the provision of an outstanding clerkship experience to medical students. We also play a leading role in supporting medical student community outreach efforts, and support for the community based Family Medicine Residency program.

The Department is also involved in service to the profession, including continuing medical education and licensing activities. Over the coming months and years, we hope to continue to expand our capabilities and activities. Faculty research interests encompass diverse topics that include child health and predictors of obesity, medical education, communication, primary care psychiatry, chronic disease management, informatics, professionalism and health literacy.

Professor & Chair:

Prof LS Nasir

Associate Professor:

Dr C Leduc

Dr SC Major

Dr EAM Prinsloo

Dr B Raasch

Assistant Professor:

Dr J Hashim

Dr D Mirza

Medical Research Specialist:

Ms H Mustafa

Medical Research Technician:

Mr J Cherian

Medical Secretary:

Ms MC Cetra

Articles in Peer-reviewed Journals

Heal CF, Weedon D, Raasch BA, Hill BT, Buettner PG. (2009). Agreement between histological diagnosis of skin lesions by histopathologists and a dermatohistopathologist. *International Journal of Dermatology*, 48:12;1366-1369.

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Tropical Public Health, 8:42-44.
Saab BR, Major S, Musharrafieh UM, Antoun J. (2009). Focus groups finding reveal barriers to teaching communication skills to medical students. *Lebanese Medical Journal*, 57:4;248- 252.

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Nasir L. (2009). Commentary. *Emirates Medical Journal*, 27(3) 1-1.

Raasch B. (2009). Management of superficial basal cell carcinoma: Focus on Imiquimod. A review. *Clinical Cosmetic and Investigational Dermatology*, 2:65-75.

2009 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.

[http://www.fmhs.uaeu.ac.ae/Departments/Community Medicine](http://www.fmhs.uaeu.ac.ae/Departments/Community%20Medicine) Tel: 7672000 / Fax: 7672033

Department of Internal Medicine



Department Profile

This Department has been highly active in the three fields of Teaching, Research and Clinical Services through 2009.

Below are some of the activities of the Department in 2009:

- Coordinator, 14th Annual Workshop on Diabetes Mellitus. Activity organized by the Al Ain Diabetes Research Group; April 4, 2009, Faculty of Medicine and Health Sciences, Al Ain, UAE. (Dr H Saadi, Dr J Alkaabi).
- The MRCP(UK) PACES Centre at Al Ain Hospital is firmly established and is providing 2 diets per year.
- The Professorial Medical Unit (PMU) continues at Al Ain Hospital under the Clinical Directorship of Professor S Gariballa. This clinical unit provides resources for clinical care, postgraduate residency teaching and clinical research.

In relation to Teaching Assistants, we have six who are studying abroad. They are as follows:

Dr A Al-Dhanhani; Dr S Al-Karam; Dr G Al Mansoori; Dr M Al Houqani; Dr S Al-Shamsi; Dr F Al-Shamsi -*Teaching Assistant (Canada)*-.

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

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

The Departmental laboratory is located on the 3rd floor and research interests and publications covered in 2009 were:

• genetics • dermatology • cytokines • cancer • infections, including fungi • lipids • pleural disorders • vasoactive peptides • diabetes • hypertension • osteoporosis • cardiovascular disease • chronic renal failure • rheumatic disease

The Department members published 23 papers in peer-reviewed journals, 2 abstracts and 11 conference presentations, and 6 clinical grants are held.

Professor & Chair:

Prof H Saadi

Professor:

Prof A Bellou

Prof I Galadari

Prof S Gariballa

Prof E Kazzam

Associate Professor:

Dr J Braun

Dr W Conca

Dr S Denic

Dr I Hassan

Assistant Professor:

Dr A Al-Fazari

Dr J Alkaabi

Dr S Al-Suwaidi

Dr H Galadari

Dr A Shehab

Teaching Assistant:

Dr A Al-Dhanhani

Dr M Al Houqani

Dr S Al-Karam

Dr G Al Mansouri

Dr F Al-Shamsi

Dr S Al-Shamsi

Medical Research Specialist:

Dr A M Abdulle

Mr J Yasin

Research Nurse:

Mr A Alessa

Administrative Assistant:

Mr H Hassan

Secretary:

Ms S Ogilvie

Ms R John

Office Assistant:

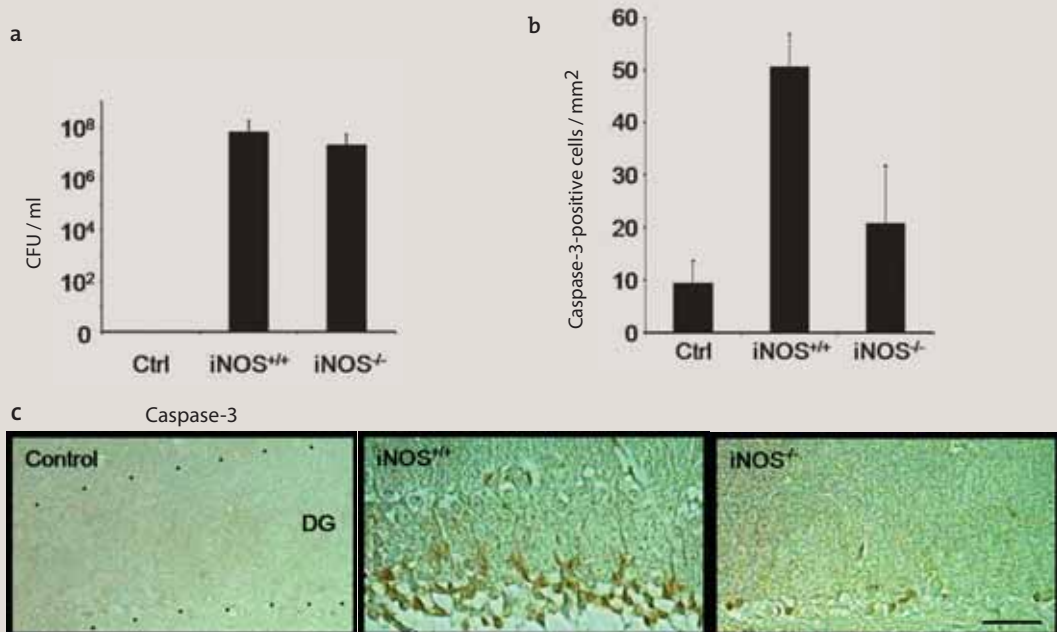
Mr Pocker



Braun JS. in: British Medical Journal 2009:

Headache, personality changes and fine motor disturbances

MRI showed multiple, contrast-enhancing cerebellar lesions (fig 1A, arrows) and marked contrast-enhancement of the meninges (fig 1B, arrows). Cerebrospinal fluid (CSF) showed increased leukocytes (461/ μ l, normal <5), protein (164 mg/dl, normal <45), IgG 17.0 mg/dl (normal <4), lactate (3.6 mmol/l, normal <2.1) and decreased glucose (27 mg/dl, normal 50–75). Indian ink stain (fig 1C), culture (fig 1D), Gram-negative capsule (fig 1E) and serotyping identified *Cryptococcus neoformans* var *grubii* with increased cryptococcal antigen but no bacteria in the CSF



Braun JS. in: International Journal of Neuroscience 2009

Inducible nitric oxide synthase mediates hippocampal caspase-3 activation in pneumococcal meningitis Caspase-3 in pneumococcal meningitis is reduced in iNOS^{-/-} mice. (a) Quantification of bacterial CFUs in cerebrospinal fluid after 24 hours meningitis of wild type and iNOS^{-/-} knockout mice. (b) Quantification of caspase-3-positive cells per square mm hippocampus 24 hours following intrathecal injection of *Streptococcus pneumoniae*. Control mice were injected intrathecally with PBS for the same time. (c) Active caspase-3 was assessed immunohistochemically in wild type and iNOS^{-/-} knockout mice after 24 hours meningitis. Bar = 30 μ m.

Articles in Peer-reviewed Journals

Al-Kaabi J, Al-Maskari F, Saadi H, Afandi B, Parkar H, Nagelkerke N. (2009). Physical activity and reported barriers to activity among type 2 diabetic patients in the United Arab Emirates. *Rev Diabet Stud* 6(4); 271-8. Epub 2009 Dec 30.

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RESEARCH GRANTS

FMHS Research Grants

Dr W Conca. Identification of peptides and proteins in the tear fluid peptidome/proteome of the Arabian Camel (*Camelus dromedarius*).

Dr S Denic. Characterization of the molecular basis of benign neutropenia in native subjects from United Arab Emirates.

UAEU Individual Grants

Dr W Conca. Role of Toll-like receptors in hypergammaglobulinemia: a potential model for systemic lupus erythematosus?

UAEU Interdisciplinary Grants

Dr S Alsowaidi. Type I allergies, their causative allergens and possible risk factors among nationals of the United Arab Emirates.

Prof S Gariballa. The effects of diet

and exercise on risk of cardiovascular diseases of obese pre-diabetic subjects and their spouses.

Emirates Foundation Grants

Dr H Saadi, Dr J Alkaabi, Prof E Kazam. National survey of diabetes and its complications in the UAE - Abu Dhabi phase.

2009

Internal Medicine



*Back row left to right: S Denic, H Hassan, AM Abdulle, S Gariballa, Abubaker, J Alkaabi
Middle row left to right: W Conca, H Galadari, S Ogilvie, R John, S Benedict, J Yasin, A Al-Essa, Mr Harikrishna
Front row left to right: H Saadi, I Galadari, SG Carruthers, M Ellis, EN Obineche, A Bellou, A Al Fazari*

<http://www.fmhs.uaeu.ac.ae/Departments/InternalMedicine> Tel: 7672000 / Fax: 7672995



Department of Medical Education

Research Profile

Professor & Acting Chair:

Prof LS Nasir

*Professor & Associate Dean,
Medical Education*

Prof M Ezimokhai

Professor:

Prof Michelle McLean

Associate Professor:

Dr S Shaban

*Medical Skills and
Communication:*

Ms G Kershaw

Dr R Benner

Administrative Assistants:

Mr CP Nair

Mr M Nazimuddin

Ms NS El Nasr

Secretary:

Ms S Lal

Office Assistant:

Mr T Usman

MEDIA CENTER

AV Specialist:

Mr M Yassin

Graphic Designer:

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Photographer:

Mr A Prasad

Reprographic Technician:

Mr M Aboobacker

**SKILLS AND TEACHING
LABORATORY**

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:

- Transferable/generic skills audit: 3 year study completed and the data being analysed (McLean, Shaban).
- Female and male medical students' perceptions of the practice of medicine: Collaborative work done with the University of KwaZulu-Natal. Follow-up interviews (n = 12) with UAEU interns have been transcribed (McLean).
- Student project 1: Female Emirati patient choice of a physician and their experience with medical students. Results presented at various student and international conferences. Paper to be published in Medical Education in early 2010 (McLean, medical students).
- Student project 2: Meeting the competencies of the CanMEDS roles in the FMHS curriculum. Where are they being met? What activities contribute to their development? MSC1 students began during the summer. A poster was presented at the GCC conference in January 2009 (McLean, medical students).
- Development of a website for the Clinical Skills Training Centre for online registration and evaluation [<http://www.fmhs.uaeu.ac.ae/cstc/>] (Shaban, Torab).
- Predictors of Medical School Performance: To examine the predictive ability of multiple indicators on academic performance at medical school. (Shaban, McLean).
- Development 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).

- Development of a Residency Management Website for the residency programs at Faculty of Medicine and Health Sciences, UAEU. A database-driven secure website allows multiple level access for program coordinators and residents. Features include resident rotations, evaluations, leave requests, and online examination. [<http://www.fmhs.uaeu.ac.ae/residency/>] (Shaban).

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Medical Education



Standing left to right: Mr A Prasad, Prof M Ezimokai, Ms Hoda Mansour, Mr CP Nair, Mr M Aboobacker, Mr M Yassin, Mr M Nazimuddin, Mr K Unnikrishnan, Mr B Abubakkar, Mr T Usman, Mr K Pandian, Mr A Wahab, Seated left to right: Ms Ivanna Lizarriturri, Ms G Kershaw, Dr Sami Shaban, Prof L Nasir, Prof Michelle Mc Lean, Ms Nada Seifelnasr, Ms S Lal, Ms S Mazrouei

Department of Medical Microbiology & Immunology



Research Profile:

In this academic year efforts of the Department was particularly directed towards the finalization of the research project of graduate students. Four graduate students in the Department have finalized their experimental work and are preparing their thesis for defense in the first trimester of 2010.

Postdoctoral training of national faculty in leading research centers abroad resulted in the publications in major journals. Dr Mariam Al-Shamsi co-authored paper based on her work in WHO Collaborative Center for Novel Therapies in Rheumatology, University of Zurich describing new antibody in rheumatoid patients, which may be of direct diagnostic and prognostic relevance (*Arthritis Rheum.* 2010, 62:93-104). Dr Ahmed Al-Qahtani (on leave in the Department of Molecular Biology & Biochemistry, University of California at Irvine) co-authored a paper in *Nature Immunology*, (2009, 10: 540-50) which represents a milestone contribution to our understanding of B cell biology.

Members of the department were successful in obtaining competitive peer review grants from external agencies. Notably Professor Ramadi developed a new collaboration with the Center for innate immunodeficiencies in Boston (MA, USA) funded by Harvard Foundation Dubai and Professor Rizvi continues his successful collaboration with gene therapy experts at the University of Cambridge, funded by the Wellcome Trust.

Professor Pal, Dr Sonnevend and Dr. Khan who have recently joined FMHS have obtained initial funding for start up and their labs are now fully functional. Ongoing projects are highly relevant for etiopathogenesis of infections of importance for UAE and involve close collaboration with clinical colleagues in the hospitals.

Members of the department were invited speakers at major international meetings: Professor Lukic was plenary speaker at the European Rheumatology Congress in Copenhagen and Russian

Professor & Chair:

Miodrag L. Lukic

Professor:

B al-Ramadi

S Dissanayake

T Pal

T A Rizvi

Associate Professor:

Dr G Khan

Assistant Professors:

Dr M Al Shamsi

Dr A Al-Qahtani

Dr A Sonnevend

Medical Research Specialist:

Ms A Al Gazawi

Mr A El-Hag

Mr H Hasasna

Ms M Ibrahim

Mr A Shahin

Medical Research

Technician:

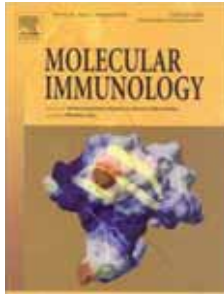
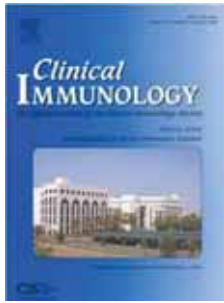
Ms G Bashir

Secretary:

Ms G K Dawood

Office Assistant:

Mr M Hashik



Academy of Sciences Meeting on Biocatalysis. Professor Pal gave an update of emerging resistances on Gram negative bacteria at the 19th Conference of the European Society of Clinical Microbiology and Infectious Diseases in Helsinki and Professor Ramadi was invited participant at the Expert Committee on Primary Immunodeficiencies meeting in Dublin.

Immunologists in the Department were guest editors of the special issue of major journals in their field: *Clinical Immunology* (B. al-Ramadi and M.L. Lukic) and *Molecular Immunology* (M. L. Lukic).

One of the major research interests in **Basel al-Ramadi's** 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 (figure 1). In another research focus, cytokine-expressing bacterial strains are being utilized as a means of boosting the immune response to tumor challenge. This form of immunotherapy has been shown to be active when given orally, which is of significant benefit as it decreases the toxicity often associated with systemic cytokine therapies. The exact mechanism(s) by which recombinant bacterial strains inhibit tumor growth is currently under investigation.

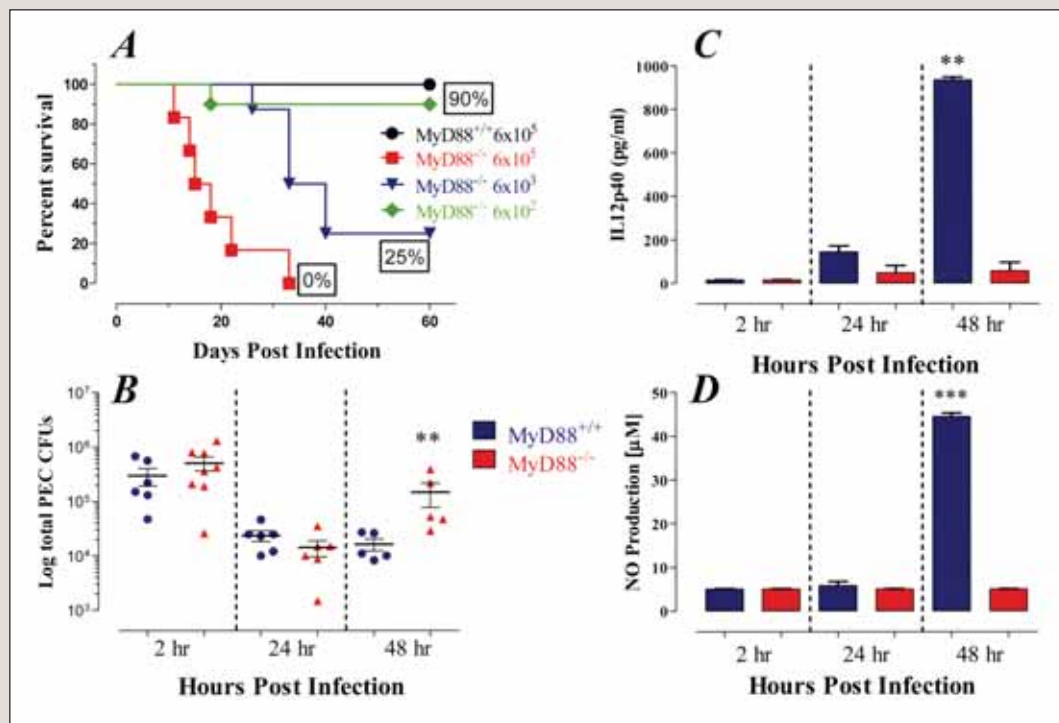


Figure 1 A deficiency in MyD88 adaptor protein renders hosts susceptible to bacterial infections. The responses of normal (MyD88^{+/+}) and deficient (MyD88^{-/-}) mice to an infection by an attenuated strain of *Salmonella typhimurium* are shown in figure panels A-D. (A) animal survival following inoculation of different bacterial doses. As expected, 100% normal mice survive an infection with a dose up to 6x10⁵/mouse. In contrast there was 0% survival of MyD88^{-/-} mice at this dose. Based on survival data, it is estimated that MyD88^{-/-} mice are ~1000-fold more susceptible than normal animals. The basis of the increased susceptibility is shown in panels B-D. Inability to control bacterial proliferation within the injection site, the peritoneal cavity, is observed as early as 48 hours post infection (B) and is caused by defective production of essential pro-inflammatory cytokines (e.g. IL-12, panel C) and anti-microbial mediators, including nitric oxide (panel D).

Mariam Al-Shamsi's main research activity is in the area of inflammation and autoimmunity. Her current work is on the role of B lymphocyte induced maturation protein-1 (Blimp-1) in the pathogenesis of the autoimmune disease rheumatoid arthritis. Expression of mRNA transcripts of Blimp-1 was detected mainly at the invasion front of bone erosion sites (figure 2). Identification of the positive cells as osteoclasts was confirmed by the presence of the lacunae at sights of close contacts between these cells (indicated by the arrows). Blimp-1 was first identified as a suppressor for IFN- β , a negative regulator of osteoclastogenesis interfering with the c-Fos osteoclastogenesis induction pathway (figure 3). Whether suppressing of the IFN- β is the only role of Blimp-1 in the process or it does play a more significant role is still under investigation. Mariam is also collaborating with Professor M Lukic and Dr E Mensah-Brown on studying the role of cytokines in the pathogenesis of type-1 diabetes and experimental autoimmune encephalomyelitis [EAE]. This collaboration highlighted the role of macrophages as effector cells (antigen presenting cells and secretors of proinflammatory cytokines such as IL-12 & IL-23). Together with collaborators, an unexpected finding was reported regarding a proinflammatory role of IL-27 in the pathogenesis of MLD-STZ induced type-1 diabetes.

Senarath Dissanayake's research interests are in parasite glycan immunobiology. Current emphasis is to define the molecular mechanism(s) of interaction between glycan stimulated macrophages and IFN- γ producing cells. All macrophage studies are performed with the murine macrophage cell line RAW 264.7. The prototype glycan is Lewis X pentasaccharide, which is also present in *Taenia crassiceps*. Current data show that *Taenia* glycans carrying the Lewis X epitope induce Th-1 cytokine IFN- γ in naïve spleen cells via toll-like receptors-2 and 4 (TLR 2, 4) activation. In this process, plastic surface cross-linked glycans were as effective as soluble glycans showing that receptor internalization was not required. IFN-g induction was associated with up-regulation of inducible nitric oxide synthase (iNOS) and down-regulation of arginase I (Arg1). Prolonged or pre-stimulation with parasite glycans abolished the IFN-g response in a stimulant specific manner. Oral feeding of naïve mice with glycans also induced IFN- γ refractoriness. IFN- γ refractoriness was associated with down-

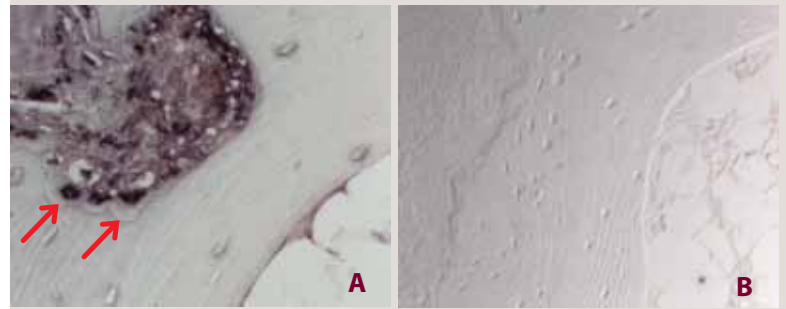


Figure 2
Paraffin sections showing strong expression of Blimp-1 mRNA transcripts in (A,B) RA, positive staining with anti sense probe (A) and negative treated with sense probe (B). Arrows indicate

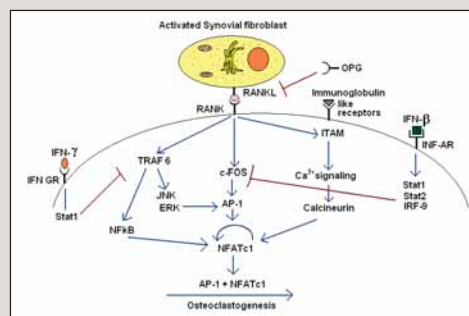


Figure 3
RANKL stimulation and subsequent activated pathways leading to osteoclastogenesis (orange arrows). Blue lines indicate the interfering signals that block the process.

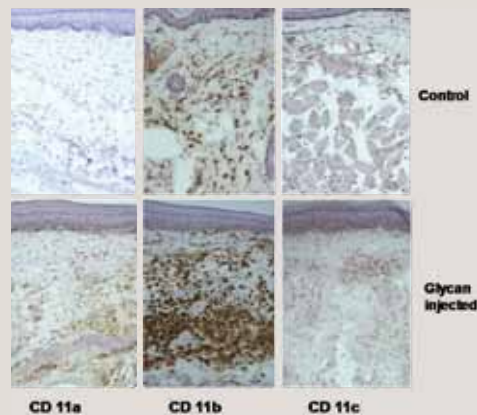


Figure 4
Immunohistology at the injection site at day 3 post injection of *Taenia Fr1*. Upper 3 panels are control mice that received saline. Bottom 3 panels are *Taenia Fr1* injected. Data for CD4, CD8a and CD 19 are not shown (publication in preparation).

regulation of iNOS and up-regulation of Arg-1 in peritoneal macrophages. The down regulatory effect of parasite glycan can be mimicked in a passive transfer type of experiment with glycan stimulated RAW 264.7 cells. In vivo studies showed that the principal cell type infiltrating a glycan injection site is CD11b+ macrophages (figure 4).

Gulfaraz Khan joined the department in November 2008. His main research interests are in oncogenic viruses and viral tumour biology, in particular, Epstein-Barr virus (EBV) and its association with human malignancies of epithelial and lymphoid origin. The current projects being pursued in Dr Khan's laboratory are:

- (1) The role EBV plays in the pathogenesis of breast cancer and Hodgkin lymphoma.

MS. However, the precise involvement of EBV in this disease is poorly understood. We hypothesize that EBV plays an indirect role in the pathogenesis of MS by triggering the secretion of certain cytokines which in turn modulate the immune response. Indeed, data shows that EBV is present in MS tissues (see figure 5) and correlates with over expression of inflammatory cytokines.

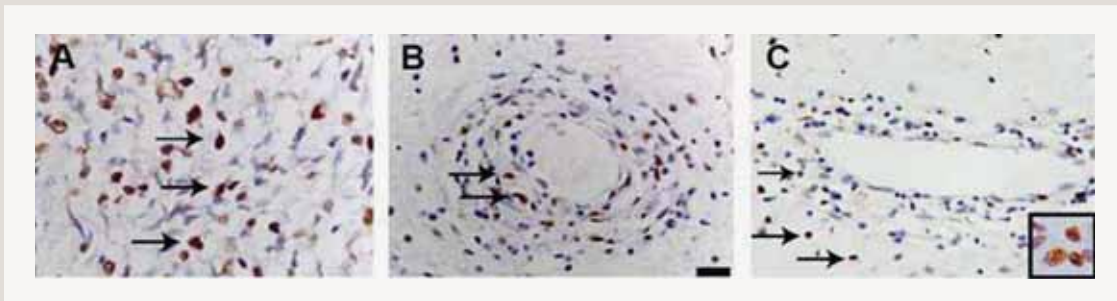


Figure 5
Presence of EBV in Multiple Sclerosis. EBV was detected using the highly sensitive and specific technique of EBER-in situ hybridization. Tissues in figure A and B are from post-transplant lymphoma and CNS lymphoma respectively, known to be EBV-positive and used as positive controls. Tissue in figure C is from a post-mortem brain of an MS case. Brown staining (arrows) indicates the presence of EBV. In MS, EBV infection was not wide-spread in the brain tissues, and the infected cells were often scattered in perivascular regions as seen in fig. C. (Submitted for publication).

- (2) The mechanisms by which EBV induces cell transformation. Specifically, we are investigating the role of the two abundantly expressed non-protein-encoding EBV RNA molecules (EBER-1 and EBER-2) in inhibiting apoptosis and promoting cell transformation. Plasmids containing EBER-1 and EBER-2 are being used to transfect Hodgkin's and Burkitt's lymphoma cell lines to determine the effects of these viral RNAs on intracellular signaling pathways involved in cell survival and proliferation processes.

- (3) The contribution of EBV in the pathogenesis of multiple sclerosis (MS) is also being investigated (in collaboration with Dr Ute Meier, Barts and The Royal London School of Medicine, University of London). A number of studies indicate that EBV may be contributing to the autoimmune response seen in

Miodrag L. Lukic's main research interest is immunoregulatory aspects and cytokine interplay in autoimmunity. Two experimental models are used to study the interaction of innate and acquired immunity in T cell mediated autoimmune response in type-1 diabetes and multiple sclerosis. In recently published papers (J. Immunol 182: 1167-1173, and Clin. Immunol 130: 83-88) his laboratory has demonstrated the role of Galectin-3 in the induction phase of an autoimmune response (figure 6). Ongoing research aims to establish whether galectin-3 contribute to the efficacy of auto-aggressive cells in the target (nervous) tissue and polyclonal recruitment of T cells, in a model of ConA induced hepatic injury. Furthermore, newly developed inhibitors of galectin-3 (Collaboration with University of Lund) will be tested as potential therapeutics in these disease models. Furthermore, using mice genetically deficient

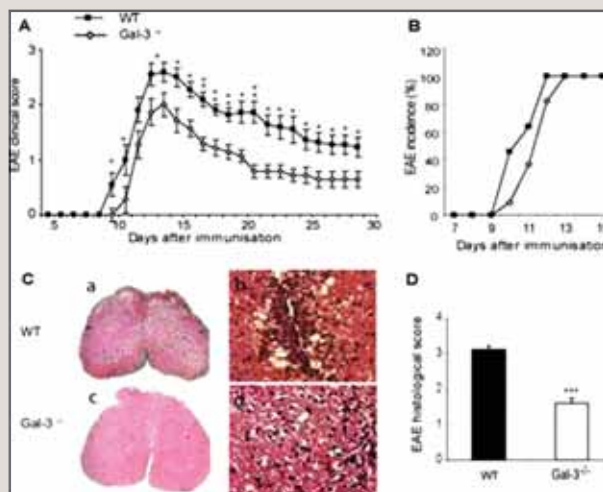


Figure 6

Gal-3^{-/-} mice developed less severe EAE than did WT mice. Mice were immunized with MOG35–55 peptide and CFA. A, Clinical scores show that *Gal-3*^{-/-} mice had a reduced EAE severity. However, all mice in both groups developed EAE (B). Results are mean clinical scores \pm SEM ($n = 11$ /group). *, $p < 0.05$ and **, $p < 0.01$, representative of four experiments. C, Pathology of spinal cord sections of WT (a and b) and *Gal-3*^{-/-} mice (c and d) were examined 18 days after immunization using H&E staining at low (a and c) and high magnification (b and d). WT mice exhibited typical perivascular and subpial infiltrates of different sizes, while *Gal-3*^{-/-} developed only single cell and rare small subpial mononuclear cell infiltrates. D, Semiquantitative assessment of the histological sections from the spinal cord of WT and *Gal-3*^{-/-} mice. Ten noncontiguous sections per spinal cord were scored. ***, $p < 0.001$ ($n = 3$). (*J. Immunol.* 182:1167-73).

in ST2 molecule selectively expressed in Th-2 but not in Th-1 cells which is a specific ligand for IL-33. Lukic's group is testing whether down regulation of IL-33 ST2 pathway enhances Th-1 mediated autoimmunity. Preliminary data in diabetes model support this hypothesis (*Mol. Immunol.* 47: 28-36, 2009).

Finally, in a project funded by Sheikh Hamdan Awards, Lukic and colleagues attempt to dissect out the role of IFN- γ and IL-17 in the induction of type 1 diabetes using recently developed IL-17 deficient mice in collaboration with Professor Iwakura, University of Tokyo, Japan.

Tibor Pál's laboratory focuses on studying various aspects of antibiotic resistant pathogens, particularly opportunistic, nosocomial pathogens such as *Acinetobacter baumannii*. The work is distributed along four tracks. In the first (supported by FMHS) we study the molecular epidemiology of this organism in hospitals of Abu Dhabi. Using molecular typing methods we follow the local spread of strains between hospitals as well as identify clones prevalent globally (see figure 7). During this project we

identified a unique clone with molecular patterns different from "international" isolates. Currently the detailed molecular characterization of this "Al Ain clone" is in progress. In the second track (supported by UAEU) the genetic background of the antibiotic resistance of these organisms is investigated. Particular emphasis is put on the investigation of foreign-promoter related expression of bla (beta-lactamase) genes among outbreak isolates. The third track (UAEU grant) aims to answer questions why certain strains of *A. baumannii* carry outbreak-potentials while others (mostly antibiotic sensitive isolates) are responsible for sporadic cases only. While multi-drug resistance clearly improves survival chances and outbreak fitness in hospitals we investigate whether there are any factors other than drug resistance promoting survival in the host as well as in the environment. The fourth area, initiated recently in cooperation with Prof. Lukic, aims to investigate the host-parasite interactions during *A. baumannii* infections of the lung. A mouse model has been established and used to describe the course of infections in wild type, as well as in galectin K/O animals.

The focus of **Professor Rizvi's** research is directed towards studying retroviruses such as human, simian, and feline immunodeficiency viruses (HIV, SIV, & FIV), Mason-Pfizer monkey virus (MPMV), and mouse mammary tumor virus (MMTV). Using these retroviral model systems, his laboratory is investigating various molecular

Over the years, they have defined the packaging determinants of SIV, MPMV, and FIV. Building on FIV studies, his laboratory successfully secured funding from the Wellcome Trust, UK, in collaboration with Professor Andrew Lever, University of Cambridge, UK. While working on this collaborative project they recently proposed

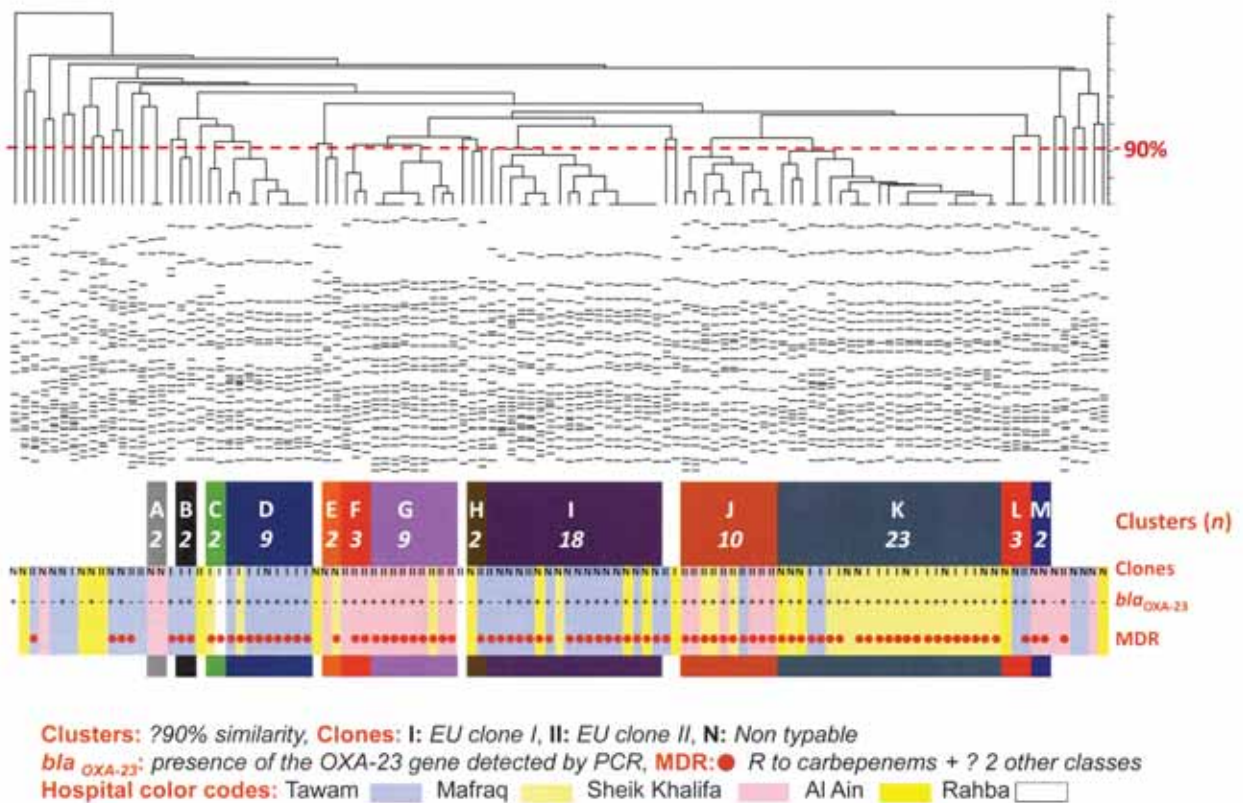


Figure 7
Pulsotype cluster formation of *Acinetobacter baumannii* isolates in Abu Dhabi. Colored blocks A-M represent clusters with ≥2 strains with over 90% similar pulsotypes.
Clones I, II or N indicate Euroclone I, II or non-typable. MDR: multi-drug resistant

steps in retroviral replication such as RNA packaging, cross-packaging, and regulation of viral gene expression. Using these retroviral model systems, they are investigating various molecular steps in retroviral replication such as RNA packaging, cross-packaging, and regulation of viral gene expression. Towards this end, his research group has been working on delineating sequences involved in retroviral RNA packaging.

the secondary RNA structure of FIV packaging signal and, based on biochemical probing, have shown the existence of a long range interaction between R/U5 and Gag sequences. Furthermore, using a biologically relevant in vivo packaging and transduction assay they have currently validated such long range interaction (Rizvi et al., submitted).

Several other projects in the laboratory are directed towards the understanding of how retroviral genetic elements function and can be exploited for better gene delivery. For example, their work on gene expression is focused on deciphering the mechanism of action of the constitutive transport element (CTE) encoded by MPMV. The use of CTE has allowed them to express heterologous genes that could not be expressed otherwise in an efficient manner. Along the same line, they have recently established three plasmids trans complementation assay for MMTV in which MPMV CTE has been used to facilitate MMTV gag/pol gene expression (Rizvi et al., 2009). As shown in figure 8, using MMTV trans complementation assay, they have shown that RNAs from genetically distinct mouse and primate retroviruses can be cross-packaged by each other proteins in vivo (Al Dhaheri et al., 2009). Furthermore, using this assay, they have also identified a segment of MMTV RNA that augments its efficient encapsidation into the virus particles (Mustafa et al., unpublished observation). In addition, this RNA region folds into a higher order structure with stable stems and loops (Aktar et al., unpublished observation).

Agnes Sonnevend's main research activities are in the area of molecular epidemiology of various, mostly antibiotic resistant pathogens. Currently she is focusing on *Staphylococcus aureus* and the emergence of community acquired, Panton-Valentine Leukocidin (PVL)-producing methicillin resistant *S. aureus*. She carries out molecular genetic investigations to find the possible link between Panton-Valentine Leukocidin (PVL)-producing methicillin resistant and methicillin sensitive *S. aureus*. Also she is investigating the possible role of biofilm formation in association of PVL production in methicillin-sensitive as well as methicillin-resistant *S.aureus*. Furthermore, in collaboration with Hungarian co-workers she also participates in assessment of increase of fluoroquinolone resistance in gram negative organisms i.e. in *Escherichia coli* and *Campylobacter jejuni*.

Beyond that she is cooperating with Prof. Mike Conlon studying the effect of various peptides on different microorganisms and with Prof. Tibor Pal investigating the molecular epidemiology and virulence properties of multidrug resistant *Acinetobacter baumannii*.

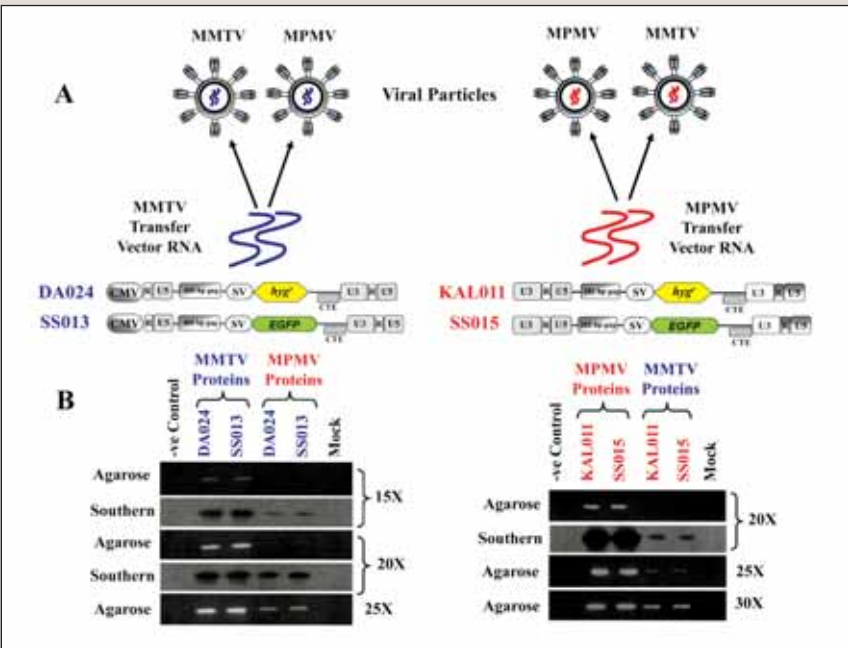


Figure 8
 MMTV and MPMV transfer vector RNAs can be cross-packaged reciprocally by each other's proteins. (A) Schematic representation of MMTV and MPMV based vectors and cross-packaging of their RNAs into the homologous and heterologous proteins. (B) RT-PCR of viral cDNAs prepared from the harvested virus particles following transfection in the producer cells

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RESEARCH GRANTS

FMHS Research Grants

Dr G Khan. Does EBV have a role in the pathogenesis of breast cancer in Emirati women?

Professor T Pal. Clonal distribution of *Acinetobacter baumannii* in Five Hospitals in Abu Dhabi Emirate.

Professor T A Rizvi. Role of the Intervening Sequences between the Major Packaging Determinants of Mason- Pfizer Monkey Virus (MPMV) in RNA Packaging and Propagation.

Dr A Sonnevend. Genotyping of Panton-Valentine Leukocidin Positive *Staphylococcus aureus* strains isolated in Al Ain.

UAEU Individual Grants

Professor Basel al-Ramadi. Role of Toll-like receptors in hypergammaglobulinemia: a potential model for systemic lupus erythematosus?

Professor Basel al-Ramadi. Role of MyD88 protein in the activation of phagocytic cells by interferon-gamma (IFN γ)- expressing bacteria.

Professor T Pal. Insertion sequence promoted expression of cefalosporinase and carbapenemase genes in *Acinetobacter baumannii* isolated in the UAE.

Professor T A Rizvi. Role of FIV Gag stem loop structure in RNA packaging and propagation: Implications for the design of FIV-

based vectors for human gene therapy.

Dr A Sonnevend. Association between Panton-Valentine leukocidine production and biofilm formation in *Staphylococcus aureus* isolated from clinical samples in the UAE.

UAEU Interdisciplinary Grants

Professor M L Lukic T cell mediated immunopathology in ST2 deficient mice: An analysis in experimentally induced autoimmune diabetes and encephalomyelitis.

Professor B al-Ramadi Ghrelin and recovery after antineoplastic and cytotoxic therapy in the UAE.

Sheikh Hamdan Award for Medical Sciences

Professor M L Lukic. Roles of Th-1 and Th-17 cells in the pathogenesis of diabetes: an analysis in multiple low dose streptozotocin induced diabetes and spontaneous diabetes in NOD mice.

Terry Fox Fund for Cancer Research

Professor B al-Ramadi. Cytokine-expressing *Salmonella* strains as effective biological therapy against cancer: analysis of the mechanisms underlying the inhibition of tumor growth.

Professor B al-Ramadi. Novel resistance biomarkers in human breast cancer.

Professor T Rizvi. 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.

Emirates Foundation

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

Others

Wellcome Trust Collaborative Project Grant

Professors T A. Rizvi and Andrew Lever. Structure and Function Analysis of RNA Packaging in the Lentivirus FIV.

Dubai Harvard Foundation for Medical Research

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

British Council, UK

Drs. Richard W. Bowtell, Yousef Haik, Bashar Issa and Basel al-Ramadi. Imaging-guided hyperthermia therapy

National Cancer Institute, National Institutes of Health, USA

Drs. Yousef Haik and Basel al-Ramadi.

2009

Medical Microbiology



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

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.

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Department of Obstetrics & Gynaecology

Research Profile

Professor & Chair:

Prof M Ezimokhai

Associate Professor:

Dr K Bodner

Dr H Mirghani

Assistant Professor:

Dr M H ElBiss

Dr SJ George

Medical Research Specialist:

Dr N Osman

Mrs FD Lone

Secretary:

Ms K Manickam

Mrs J George

The Research interests in the department are in Obstetrics, Fetal Medicine, and Minimal Access Gynaecology Surgery, Women's Health Education.

Obstetrics:

a) Pathophysiology of Pregnancy

Professor M. Ezimokhai is interested in Pathophysiology of Pregnancy and medical disorder in pregnancy. Expertise is in working with vascular and uterine smooth muscles.

b) Fetal Medicine

Dr. H. Mirghani's major area of research interest is

- Fetal growth and physiology in diabetic pregnancy.

c) Diabetes in Pregnancy

Dr Klaus Bodner is interested in Diabetes mellitus and Pregnancy outcomes

Gynaecology:

a) Women's Health

b) Dr. S. George is interested in Polycystic Ovary Syndrome, infertility, Contraception and Urinary incontinence.

c) Urogynaecology

Dr Mohammed Hasan ElBiss is interested in the Epidemiology and Management of Pelvic Floor Dysfunction

Placenta Laboratory:

A placenta laboratory is being developed to study placenta morphology, pathophysiology in different pregnancy conditions and the transmission of drugs to baby in utero. This is in collaboration with the University of Switzerland.

Articles in Peer-reviewed Journals

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Proceedings, Conferences, Invited Lectures, Web Sites and Others

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Ezimokhai M. (2009). Evidence based management of pre-eclampsia. 41st International meeting of Organization for Gestosis, Abu Dhabi, UAE, 15-16 November 2009.

Ezimokhai M. (2009). An approach to the management of preterm labour. 41st International meeting of Organization for Gestosis, Abu Dhabi, UAE, 15-16 November 2009.

George S. (2009). Polycystic Ovarian Syndrome Invasion and Role of Myomectomy in Infertility. Obs-Gyne Exhibition & Congress 2009 organized by Arab Health Convention and Exhibition in Abu Dhabi, UAE. 1st – 3rd April 2009.

Mirghani H. (2009). SNAPPS: Student-centered model for outpatient education. The 6th International Scientific Conference for Medical Students in the GCC countries, January 18-21, 2009.

Mirghani H. (2009). Fetal Medicine: A Multidisciplinary team

approach. The International Fetal Congress. Al Ain UAE, March 2-5, 2009.

Mirghani H. (2009). Fetal body measurements in GDM. The 9th World Congress of Perinatal Medicine. Berlin, Germany, October 24-28, 2009.

Mirghani H. (2009). Cumulative sum is the assessment of competency in obstetrical ultrasound. The XIX FIGO World Congress of Gynecology & Obstetrics Cape Town, South Africa, October 4-9, 2009.

Mirghani H. (2009). Changes in fetal body fat in GDM. The XIX FIGO World Congress of Gynecology & Obstetrics Cape Town, South Africa, October 4-9, 2009.



2009

Obs & Gyn

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



Department of Paediatrics

Research Profile

Professor & Chair:

Prof P Sasidharan

Professor:

Prof Y M Abdulrazzaq

Prof L Al-Gazali

Prof A Souid

Prof S A Uduman

Associate Professor:

Dr E Aburawi

Dr S Bharwani

Dr H Narchi

Assistant Professor:

Dr S Al-Hammadi

Dr F Al-Jasmi

Dr R Al- Mahmoud

Dr M Al-Samri

Dr A Al-Suwaidi

Dr G Balhaj

Research Medical

Specialist :

Mr J Kochiyil

Mr T Pramathan

Research Assistant:

Ms A Al-Kendi

Medical Secretary:

Ms R Clemente

Department Secretary

Ms M Al-Badwawi

GENETICS/BIRTH DEFECTS (INCLUDING NEURO-GENETICS)

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.

An ongoing study aims to determine prevalence of alcaptonuria within UAE population.

PERINATAL NUTRITION AND NUTRITIONAL DISORDERS

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.

VITAMIN D STATUS AMONG PEDIATRIC POPULATION IN UAE

This population based study will reveal the status of Vitamin D levels among adolescents and female pediatric patients in UAE. Since Vit. D has a pluripotent role in the body and has been found to be deficient among women and newborns in UAE (from previous studies from our department), this important project will provide information which will lead to interventional studies in the future.

Role of Vitamin D in Lung Development

Since majority of the alveolar development occurs postnatally, the interaction between Vit. D and factors responsible for alveolarization, particularly VEGF will be studied. Thus the role of Vit. D in the epithelial and mesenchymal interactions during early lung development will be investigated. This study has significant clinical implications in Pediatrics as abnormal lung development and airway reactivity frequently lead to significant morbidity in later life. We have observed a very high incidence of asthma among pediatric population in Al Ain.

Dr. Sulaiman Bharwani Helicobacter pylori infection in UAE

1. H pylori prevalence varies from 30% in developed rich countries to 90% in developing countries. It is established that H pylori causes duodenal and gastric ulcers in 10% of infected individuals and Gastric cancer in 1% of infected individuals. Our preliminary data shows that H pylori prevalence is close to 60% in UAE.
2. 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.
3. 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.

4. The virulence factors in H pylori CagA and Vac A seem to be common in the middle east. These virulent factors which have high likelihood of causing ulcers and newer biochemical markers will help us in identifying susceptible individuals whom we can treat with appropriate antibiotics. This personalized medicine is not only logical but is necessary to address the antimicrobial resistance and rising healthcare costs.
5. 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.

OTHER AREAS OF RESEARCH

Professor A. Souid/Dr. Ghazala Balhaj/Dr. Fatma Al Jasmi/Dr. Mohammed Al Samri

1. **Toxicology and Pharmacology:** We investigate the effects of cytotoxic agents on various human and animal tissues. 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.

2. **The use of oxygen analyzer to screen for disorders with impaired cellular bioenerget-**

ics (Fatma Al-Jasmi and Ghazala Balhaj). 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.

3. **Umbilical cord blood cell toxicology** (Ghazala Balhaj and Mohammed Al Samri): We investigate the effects of various toxic agents (e.g., aflatoxins B1) on circulating fetal cells.
4. **Concanavalin A-induced hepatitis** (Walter Conca, Alan Shahin and Miodrag 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.
5. **Red cell glutathione (GSH) levels in UAE patients with glucose-6-phosphate dehydrogenase (G6PD) deficiency** (Dr. Fatma 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.
6. **Erythrocyte phenotype in Emirati people with alpha-thalassemia trait.** (Srdjan Denic and Saad Showqi). The aim of this project is to establish red blood cell reference values for UAE citizen.
7. **Pediatric Tracheostomy** (Mohammed Al Samri): The aim of this project is to describe the natural history of pediatric tracheostomy and its outcomes.
8. **Sputum inflammatory phenotype in patients with asthma** (Mohammed Al Samri): 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.

9. Screening for Fabry disease in dialysis patients.

(Nafe Al Yasi , Fatma Al Jasmi) The aim of this study to determine the prevalence of Fabry disease in UAE.

Professor Uduman et. al

1. Childhood tuberculosis in UAE: The Role of adult contacts. A five-year clinical experience.). Co-investigator: Drs. Mahmud Bakir, Farrukh Sheikh (Al Ain Microbiology) Ahmed Deemas Al-Suwaidi (FMHS).
2. Molecular diagnostic and epidemiologic study of *Mycobacterium Tuberculosis* in United Arab Emirates. Pre-proposal submitted to National Research Foundation. The project is supported by a seed grant (Drs.Ahmed Deemas Al- Suwaidi –FMHS Farrukh Sheikh (Al Ain Microbiology) & Mahmud Sheik PMD, SEHA .
3. Gastrointestinal manifestations of congenital and perinatal cytomegalovirus in infants admitted to a neonatal intensive care unit. A study at Tawam Hospital. Co-investigator: Drs. Ghazala Balhaj (FMHS) and Sheikha Rabia (Tawam)
4. Helicopylori study: A hospital-based prevalence and clinical study. Co- investigator: Drs. Sulaiman Bharwani (FMHS) , Ghazala Balhaj (FMHS).
5. Hepatitis C virus-infected children of anti-HCV antibodies positive mothers. Prospective clinical study (2007-2009). Co-investigators: Drs. Ahmed Deemas Al-Suwaidi and Ghazala Balhaj.

Other areas of research include clinical and immunological aspects of hepatitis C, seroepidemiology and neonatal screening of CMV and other congenital infections. Clinical research in neurology includes profile of epilepsy and drug therapy of epilepsy in the UAE as well as brain imaging and epidemiology of cerebral palsy.

Other activities of the department include establishing normal growth charts for children from the UAE from ages 0-18 years, and the size at birth of infants born to UAE nationals. These

growth charts will provide 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.

Also, 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. Also, we will study the epidemiology of CHD in these children.

Factors responsible for inflammatory bowel disease in pediatric population is an area of interest and studies on animal models are being initiated now.

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 adults 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. Patients with T1DM and T2DM that carry the high risk Haptoglobin 2 allele would have higher levels of oxidative stress and more diabetes complications.

Long-term outcome of the very-low birthweight and extremely low birth weight infants is also an area of research within the department.

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RESEARCH GRANTS

FMHS Research Grants

Dr. H Narchi
Proteinuria pattern differences between mice with experimentally induced pyrexia versus those with experimentally induced nephrotic syndrome.

UAEU Individual Grant

Professor YM Abdulrazzaq
Deleterious effects of aflatoxin administration in pregnant mice.

Professor YM Abdulrazzaq
Oxygenation phenotype and genotype in UAE population.

UAEU Interdisciplinary Grant

Professor L Al Gazali
Homozygosity mapping and molecular characterization of recessive disorders in UAE.

Sheikh Hamdan Award for Medical Sciences

Professor YM Abdulrazzaq
Reproductive toxicological effect of lamotrigine on mice,

National Research Foundation

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].

Emirates Foundation

Prof S Karam [PI], Dr S Bharwani
Stem cells in Gastric biopsies

Others

Professor SA Uduman
Hospital-based rotavirus acute gastroenteritis study in UAE: A clinical and genomic trial Glaxo-SmithKline (July 2009 – June 2010).

Dr S Al Hammadi
Collaborative Research Network on Primary Immunodeficiency Diseases. Dubai Harvard Foundation for Medical Research Award.



2009

Paediatrics



*Standing left to right: Mr Pramathan T; Dr S Al Hammadi; Ms R Clemente; Dr S Bharwani; Dr E Aburawi; Dr H Narchi; Prof A Souid; Mr J Kochiyil; Mr M Jamal and Dr M Al Samri
Seated left to right: Dr A Al Suwaidi; Prof Y Abdulrazzaq; Prof L Al-Gazali; Prof P Sasidharan (Chairman of the Department); Prof S Uduman; Dr G Balhaj and Ms A Al Kendi*

<http://www.fmhs.uaeu.ac.ae/Departments/Paediatrics> Tel: 7672000 / Fax: 7672067

Department of Pathology



Research Profile:

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

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.

Associate Professor & Chair:

Dr A Castella

Professor:

Prof MM Agarwal

Associate Professor:

Dr B Ali

Assistant Professors:

Dr S Al Salam

Dr A Al Bawardi

Dr S Al Marzooqi

Medical Research

Specialist:

Ms A Mathew

Ms M Sudhadevi

Secretary:

Ms K Al Ghanem

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

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

The expression of EBV in Hodgkin lymphoma among UAE nationals was studied in collaboration with Dr. Suhail Al-Salam (PI), by immunohistochemistry for the latent membrane protein-1 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.

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.

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

1. Expression of EBV in Hodgkin Lymphoma among UAE nationals

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

The aim of our study was to determine the epidemiology of HL in The population of United Arab Emirates (UAE) nationals, an early industrialized country in the Arabian Gulf, and

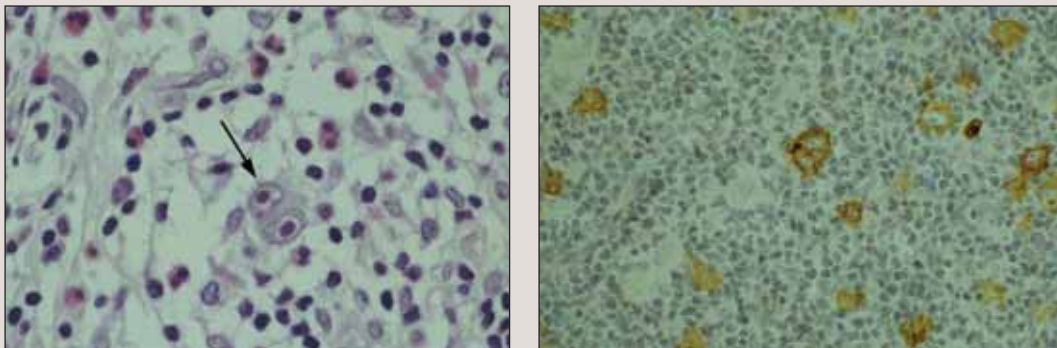


Figure: Left side, classic binucleated Reed-Sternberg cell in a case of Hodgkin's disease (arrow) (H & E x 40), right side, immunohistochemistry with CD30 antibodies highlights the Reed-Sternberg cells (dark brown color).

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 (GDM) can delay and even prevent the onset of Type 2 DM. Much of our research efforts are directed to GDM. How to screen a large population in a cost-effective manner? We are continually studying the value of various simple screening tests for GDM, which have a high degree of sensitivity. Ultimately, not missing any pregnant woman with GDM will

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 1 (LMP1) 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.

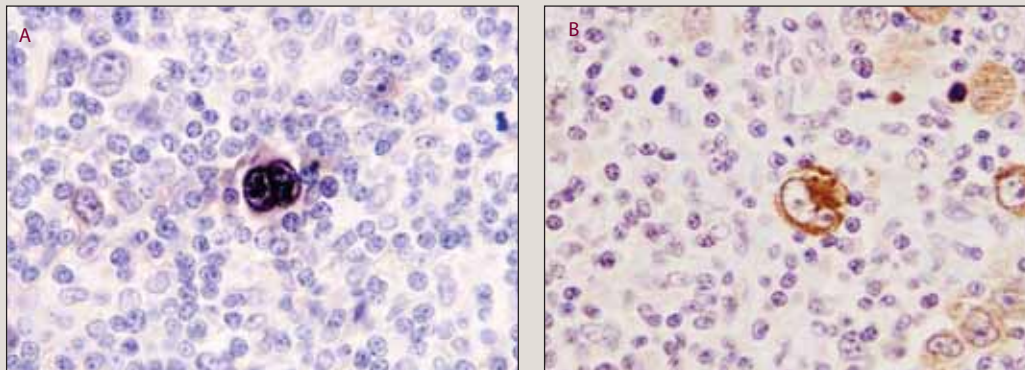


Figure:

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

2.Types of mutations in BRCA1 and BRCA2 genes in breast carcinoma among United Arab Emirates nationals and their correlation with P53, Ki 67, bcl2, nm2, c- erb-B2, estrogen receptors and progesterone receptors expression.

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

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

Gliomas are the most common primary central nervous system tumors. They are the second most common cancer among children in UAE.

They are graded into four grades from grade 1 which is the most benign to grade 4 which is the

most malignant. They are characterized by progression from low grade to high grade within the same tumor. This progression is not well understood. Furthermore, the pathogenesis of glioma is obscure. Several studies have shown the transforming potential of TFF peptides which is illustrated in tissues involved in cancer progression, while other studies have shown tumor suppressor action of TFF peptides. How can the apparent contradiction between the tumor-promoting and tumor-suppressing functions of TFF peptides be resolved? We hope that this project will answer some of these queries. There are nearly no published data concerning the expression of TFFs in human gliomas. In addition there was no previous reports concerning the role of trefoil factors in the pathogenesis or progression of glioma. Our preliminary study on few cases of gliomas using immunohistochemical stains have shown expression of TFF 3 in gliomas with difference in the expression between low grade and high grade gliomas.

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

Uterine cervical cancer is the second most common cancer in women worldwide, and the fifth most common cancer among females in UAE. Although high-risk human papillomaviruses (HPVs) are associated with cervical carcinoma, HPV infection alone is insufficient for the malignant transformation. Hence other molecular alterations are required for the development of cervical carcinoma and galectins may play an important role in these processes. The main

purpose of this proposal is to study the expression of galectin-1, 3, 4, 7 and 10 in the neoplastic cells of different types, grades and stages of human uterine cervical carcinomas. We expect that our suggested studies will clarify and elucidate the role of galectin 1, 3, 4, 7 and 10 in the pathogenesis and progression of human uterine cervical carcinoma. In this project, we will verify this hypothesis by extending our experiments on peritumoral stromal mononuclear cells as well as non- neoplastic and dysplastic uterine cervical tissues.

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

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

The Genetic and Molecular Basis of Diseases prevalent in UAE (Dr. Bassam R. Ali)

1. Identification of the molecular defects underlying single gene disorders in the UAE and Arab populations.

Recessive disorders are highly prevalent in Arab populations including UAE mainly due to high levels of consanguinity and lack of prenatal and/ or pre-conception diagnosis. We 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).

This Project is also in close collaboration with Prof L Al-Ghazali from Pediatrics department.

2. The cellular mechanisms of human monogenic disorders.

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

POSTGRADUATE STUDENTS SUPERVISED

Ms Shaikha Al-Mazrooei; 2009, Master in Environmental Sciences Programme, Faculty of Postgraduate Studies, UAE University, UAE Thesis: The genetics of familial hypercholesterolemia in UAE.

Departmental Undertaking:

Drs Alia Al Bawardi and Saeeda Al Marzooqi (resident trainees) are completing their training in Pathology at McGill University, Montreal, Canada.

Articles in Peer-reviewed Journals

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Ali BR, Al-Gazali L. (2009). The molecular basis of single gene disorders in United Arab Emirates. The 5th Scientific Conference of Al-Quds Medical School, 30th-April-1st May 2009, Jericho, Palestine. Al-Salam S, Sudhadevi M, Nagelkerke N, Chong SM, Castella A. (2009). Role of Epstein Barr Virus in the Expression of COX2, P16 INK4A and P53 in Hodgkin Lymphoma. Beatson International Cancer Research Conference.

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RESEARCH GRANTS

FMHS Research Grants

Dr BR Ali (PI), Prof O El-Agnaf Evaluating the role of Rab1 in reducing alpha-synuclein cytotoxicity in cultured mammalian cells.

Drs A Nemmar (PI), S Al-Salam Evaluation of the acute toxicity of the systemic exposure to diesel particles.

Dr S Al-Salam (PI) Role of Galectin 1, 3, 4, 7 and 10 in the development and progression of uterine cervical carcinoma.

UAEU Individual Grant

Drs A Nemmar (PI), S Al-Salam Effect of diesel exhaust particles on cerebral microvessel thrombosis, pulmonary and systemic oxidative stress: Influence of a cysteine prodrug, L-2-oxothiazolidine-4-carboxylic acid.

Dr W Conca (PI), Prof B Al-Ramadi, Dr S Al-Salam Role of Toll-like receptors in hypergammaglobulinemia: a potential model for systemic Lupus erythematosus.

UAEU Interdisciplinary Grant

Dr BR Ali (PI), Prof L Al-Gazali Homozygosity mapping and molecular characterization of recessive disorders in the UAE.

Dr. B Ali (Co-PI), Prof. V. Eapen (PI), Dr. H Moselhy (PI) Association of Serine racemase gene, PDLIM 5 gene and PICK 1 gene polymorphism and schizophrenia

Terry Fox Fund for Cancer Research Grant

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.

Emirates Foundation

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.

Dubai Harvard Foundation for Medical Research

Dr. B Ali (PI), Prof. L. Al-Gazali, Prof. C Walsh, Dr. B Meyer Identification of genes for human cognition

Others

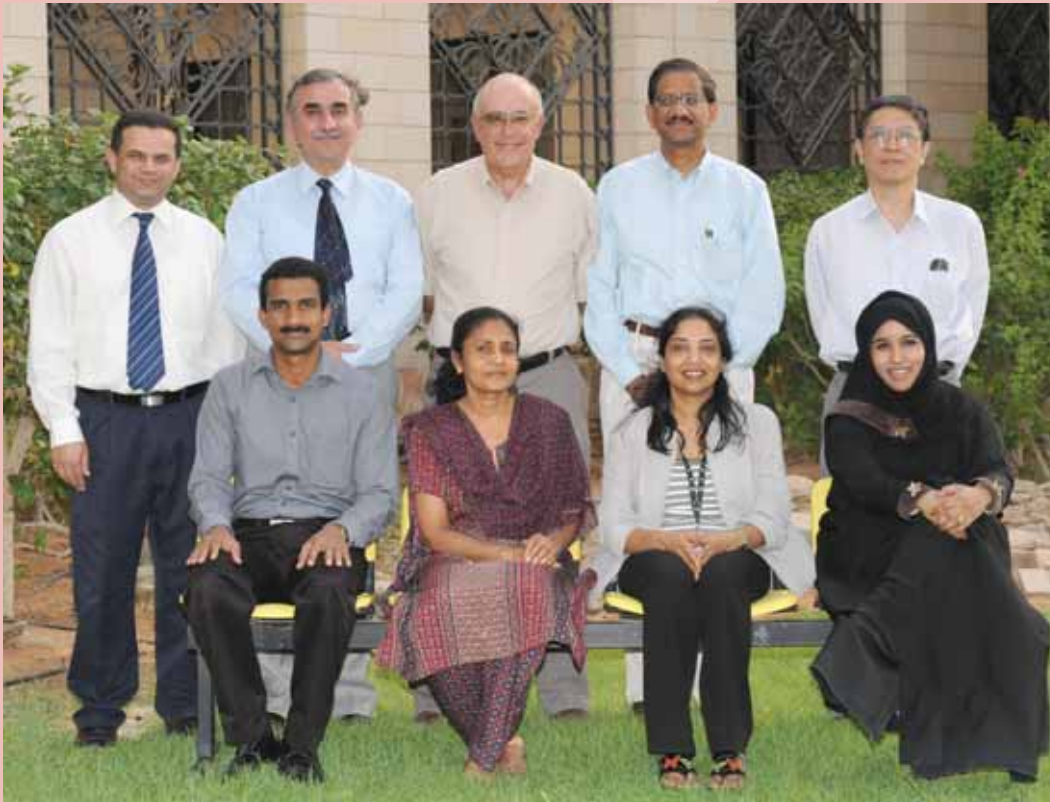
Drs BR Ali (PI), S Al-Yahyaee Molecular epidemiology and diagnosis study of common inborn errors

of metabolism disorders in Oman and UAE. UAEU-SQU Cooperative Research Grant.

Dr. B Ali (Co-PI), Prof. L. Al-Gazali (PI), Prof. O El-Agnaf, Prof. T E. Adrian, Prof. E Adeghate, Prof. B al-Ramadi.
NRF Genes and Diseases Research Center of Excellence
UAE National Research Foundation (NRF).

2009

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

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



Department of Pharmacology

Research Profile:

Professor & Chair:

Prof A Adem

Professor:

Prof MY Hasan

Prof G Petroianu

Associate Professor:

Dr S Attoub

Dr S Bastaki

Dr M Oz

Medical Research Specialist:

Ms N Amir

Ms K Arafat

Mr SM Nurulain

Mr A Shamsllisam

Medical Secretary:

Ms S Duncan

Office Assistant:

Mr Saeed C

Central Facilities

(Animal House):

Medical Research Specialist:

Dr M Al Sultan

Mr M Shafiullah

Mr M El Wasila

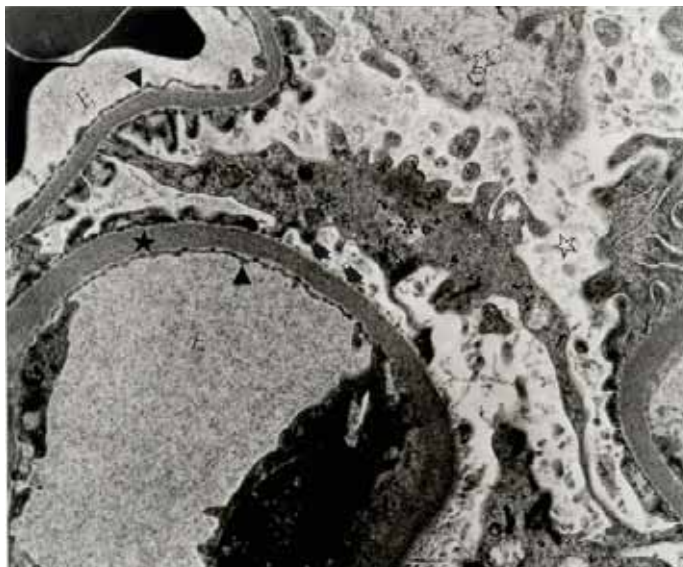
The Pharmacology Department has special interests in Diabetes and Degenerative Diseases, Neuroscience, Clinical Toxicology, Gastroenterology and Oncology. The research is done with state of the art equipment in purpose- built laboratories with good technical and other support.

Prof. Abdu Adem

Diabetes

Mechanisms of Apoptotic Cell Death in Diabetes

In almost all multicellular organisms, cell suicide or apoptosis appears to play an important role in the maintenance of cellular homeostasis. Apoptosis is tightly regulated by a set of genes that either promote apoptosis or promote cell survival. Although a number of stimuli appear to trigger the process of apoptosis, there are two major signaling pathways of apoptosis: the death receptor pathway and the death receptor-independent or mitochondrial pathway. Mechanisms of apoptotic cell death are being studied



in kidneys of an animal model of diabetes. The ultra structural features in the tubules seem to implicate apoptosis in the pathology of renal nephropathy. In addition we reported, for the first time, a significant loss of foot processes of podocytes (*) in the diabetic rat kidney (Fig.1 left). These findings could contribute to the understanding of the patho- physiology of diabetic nephropathy.

Neuroscience

Neurodegenerative Diseases

Novel Selective Ligands for Muscarinic Acetylcholine Receptors

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

Prof. Georg Petroianu

Clinical toxicology

Therapy of acute organophosphate poisoning

Organophosphorus cholinesterase inhibitors (organophosphates) are widely used in agriculture, in industry and technology, and in military technology. According to the WHO, more than one million casualties per year are due to organophosphates exposure. Countries of the Indian subcontinent and adjacent regions top the list. While use of atropine in the therapy of acute organophosphate poisoning is well-established clinical practice, the use of oxime enzyme reactivators (pralidoxime, obidoxime) is a hotly debated issue. Recent in vivo data from

our laboratory shows that oximes produce a spurious signal when ChE activity is determined photometrically. True enzyme protection/ reactivation is thus less than assumed. Furthermore high dose oxime increases the "time-to-extubation (TTE)" and mortality as compared to identical therapy without oxime (animal data). The paradigm of enzyme reactivation in organophosphate poisoning must be reassessed and alternatives developed. Screening of benzamide compounds with cholinesterase protective capabilities is a present priority of our group. Preliminary experiments performed in our laboratory in vitro and in vivo suggest that the benzamide compound tiapride is partially protective against esterase inhibition by organophosphates. In addition newly synthesized oximes with superior reactivating properties are tested in conjunction with benzamides to increase survival in exposed animals.

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 Ahmed 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/NFκβ pathway as a driving force behind lung and colon cancer progression (apoptosis, invasion, angiogenesis and metastasis) using siRNA technology and in parallel screening of potential anti-cancer drugs.

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

The PI3K/Akt/NFκβ signaling cascade is constitutively activated in cancers. Akt is linked to the transforming activity of c-src, c-kit, c-met oncogenes and growth factors, such as EGF and IGF receptors. Drugs targeting receptor tyrosine kinases (ErbB2/HER2 and ABL/c-kit) impact the PI3K/Akt pathway. Consequently, the inhibition of Akt is considered to be an attractive cancer therapeutic target. Three isoforms of Akt (Akt1/PKBα, Akt2/PKBβ, and Akt3/PKBγ) are over-expressed

and activated in cancers, but the degree of functional redundancy between them on cancer cell survival and invasion are unclear. The identification of the Akt isoform that is the most promising target for cancer therapy is unknown and will be addressed in the following specific objectives:

- a. To explore the respective roles of Akt-1, -2 and -3 in cancer cell survival, invasion, tumor growth and metastasis, studies will be conducted using RNA interference technology in LNM35 human lung cancer cells and HT29 human colon cancer cells.
- b. To characterize the ability of different isoforms of Akt (Akt-1, -2 and -3) to transactivate different subsets of target genes to orchestrate either cell survival or invasion. This will be investigated in colon and lung cancer cells using microarray analysis.

The effects of knockdown of Akt-1, -2 or -3 on cellular survival will be determined by cellular viability, DNA fragmentation, cell cycle and TUNEL assays, caspases activity, PARP cleavage, cytochrome-c release and expression of pro- and anti-apoptotic proteins. The impact of Akt-1, -2 or -3 silencing on invasion will be investigated using the collagen type I and the chick heart invasion assays, cell-cell and cell-matrix adhesion and expression of E-Cadherin. The effect of knock down of the Akt's on HT29 cell line on tumour growth will be tested in nude mice. In addition, we will 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 Fronodoside 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.

Articles in Peer-reviewed Journals

Al Dhaheer AS, Al-Niyadi MS, Al Dhaheer AD and Bastaki SM (2009). Resistance patterns of bacterial isolates to antimicrobials from 3 hospitals in the United Arab Emirates. *Saudi Medical Journal* 30: 618-623.

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RESEARCH GRANTS

FMHS Research Grants

Prof. Abdu Adem [PI] Immunological responses in brain after adrenalectomy. Organophosphate Compounds.

UAEU Individual Grants

Prof. Abdu Adem [PI] Role of inflammatory molecules and their receptors in adrenalectomy.

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

Dr Bastaki et al: Effect of TNF- α deficient mice on gastric ulcers induced by indomethacin.

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

Sheikh Hamdan Award for Medical Sciences

Prof A Adem. Potential role of immune response and inflammatory molecules in pathogenesis of excitotoxic neurodegeneration: a model of Alzheimer's disease.

2009
Pharmacology



Standing left to right: Ms S Sayed, Dr M Al Sultan, Mr A Shamsulisam, Dr S Attoub, Dr M Oz, Mr C Saeed, Mr M Shafullah

Seated left to right: Ms N Amir, Ms S Duncan, Prof A Adem, Prof MY Hasan, Prof H Kalasz, Dr S Bastaki, Ms K Arafat

<http://www.fmhs.uaeu.ac.ae/Departments/Pharmacology>. Tel: 7672000 / Fax: 7672033



Department of Physiology

Research Profile

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

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

ELECTROPHYSIOLOGY AND CLINICAL NEUROPHYSIOLOGY LABORATORIES

The research activities of the electrophysiology laboratory focuses on skeletal muscle function and muscle pain. The main techniques employed are classical electrophysiological techniques (EMG, ENG, muscle force and velocity, single fiber and single unit-extracellular/intracellular recordings). We have also recently introduced at FMHS the set of small animal behavioral techniques including Morris Water Maze, T and Y maze, coordination and balance motor testing etc. Currently, in collaboration with several colleagues we are focusing on validation of behavioral abnormalities in Rotenone rat model of Parkinson's disease. We are also planning to introduce multiunit recording by implementing multisite cell recordings in order to investigate in more details the plasticity changes of spinal cord pain processing neural networks. We are particularly interested to elucidate differences between cervical and spinal neural networks as they may exhibit differential processing in

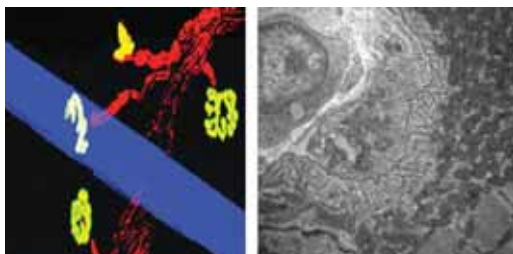
chronic muscle pain conditions which are clinically quite different in these two regions. Initially, this work will focus on possible involvement of basal ganglia in chronic pain modulation.

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

AGING AND NEURODEGENERATIVE DISORDERS

Studies on aging and neurodegenerative disorders have focused on synaptic plasticity and synaptic remodelling, particularly at the nerve-muscle junction in various peripheral neuropathies including those caused by diabetes, aging and heavy metal poisoning.

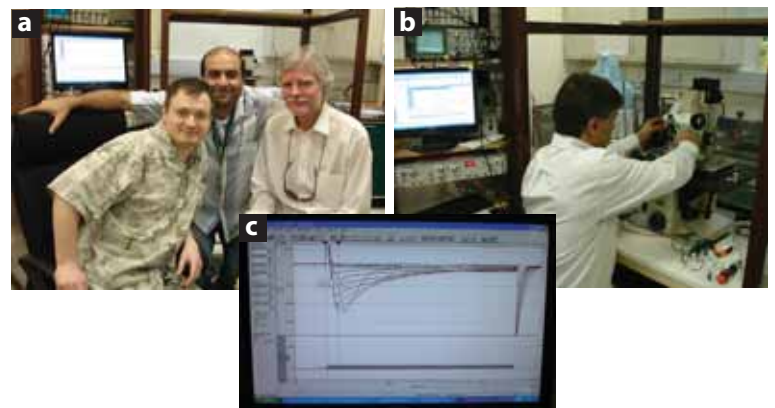
Electrophysiological, laser confocal microscopy and electronmicroscopy techniques are used in combination to focus on changes in muscular performance in these conditions. It is hypothesised that free radicals are involved in these nerve injuries and antioxidants like vitamin E & C may have a protective 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 C Howarth and Dr. Murat Oz have recently established a patch clamp electrophysiology laboratory in FMHS. "Cutting edge technology" in this laboratory will enable researchers to measure membrane currents and voltages in cells and tissues isolated from various organs such as heart, pancreas and brain. (a) Left to right. Dr Dmytro Isaev (Visiting research collaborator, Ukraine), Dr Murat Oz and Professor Chris Howarth, (b) Dr Munir Husain (Visiting research collaborator, UK) and (c) first electrophysiological data.



MAPPING LABORATORY

Work has again proceeded very well this year in the mapping lab. The highlight has probably been the publication of our paper describing the "gastric conduction system" in which we present our discovery of the location and the pattern of activity of the pacemaker in the stomach and the propagation of the pacemaker impulse from that site to the remainder of the stomach in a pattern which we described in terms of a conduction system. This gastric conduction system consists of areas with rapid propagation, areas with low propagation and areas where propagation does not occur at all (see figure p72). In addition, we discovered that there are 3-5 electrical impulses propagating simultaneously at any one time (animations available at www.smoothmap.org). Other work relates to the search for the pacemaker or pacemakers in the pregnant myometrium and we are further developing models in the rat small intestine and the guinea pig stomach. We can

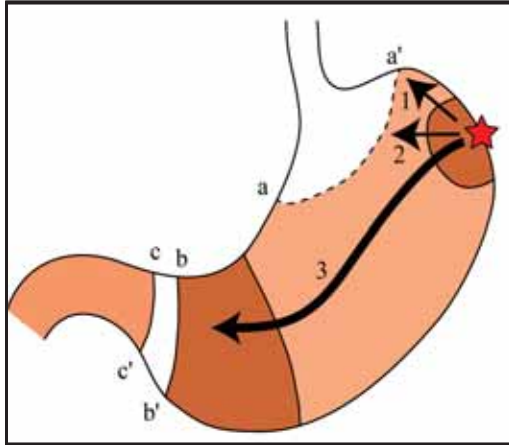


Figure:

Diagram of the gastric conduction system. The star high along the greater curvature indicates the location of the gastric pacemaker. Dark brown areas (pacemaker area and antrum) indicate slow wave areas with high amplitudes and rapid velocities. Light brown areas (fundus/corpus) indicate areas with low amplitudes and low velocities. Arrows 1 and 2 indicate oral and circular propagation respectively while arrow 3 indicates the predominant aboral longitudinal direction of propagation. Dashed line a-a' indicate variable lines of conduction block isolating the medial fundic area. Lines b-b' and c-c' indicate fixed lines of conduction block isolating antral activity from duodenal activity. (Courtesy: Am J Physiol 2009; 296; G1200-10).

also report continuing or expanding collaborative work, and increasing number of publications, with:

1. Dr Fayez Hamad, Surgery, FMHS, on the pattern of impulse propagation in the blocked ureter.
2. Drs John Windsor, Andrew Pullan and Leo Cheng and their group, Auckland, New Zealand, on the application of high resolution mapping in pigs and human stomach.
3. Dr Ming Lei and his group, Manchester, UK, on the application of sinus node mapping in the mouse.
4. Dr Alan Bradshaw, Vanderbilt University, Nashville, USA on high resolution mapping in the small intestine in humans before and after revascularization.
5. Dr Jan Huizinga and his group, McMaster, Hamilton, Canada on the mechanism of segmental contractions in the rat small intestine.
6. Dr H Schafer and his group, Zweibrücken University, Germany on small intestinal motility in a mouse model of Alzheimer.

Finally, we are developing or upgrading several computer programming software's that are currently also being used by other labs such as Smoothmap 3.5 (for the analysis of electrical signals and creation of propagation maps), MotilityMap 3.0 (analysis of contractions from video recordings) and ST-map 1.0 (a contraction simulation program and its conversion to D-maps).

PATHOPHYSIOLOGIC MECHANISMS OF PARTICULATE AIR POLLUTION

The main research topic of Dr Nemmar is related to the pathophysiologic mechanisms underlying the respiratory and cardiovascular effects of air pollution. Within the last two decades, environmental factors such as air pollution have been shown to contribute to cardiorespiratory morbidity and mortality. A growing body of epidemiological data implicates particulate matter air pollution (PM) as yet another factor in the pathogenesis of respiratory and cardiovascular diseases. PM influences susceptibility to hard events and may be particularly harmful to high-risk groups such as people with diabetes, people with hypertension, and elderly people. However, the pathophysiologic mechanisms underlying these associations are not fully understood. Recently, through a series of experimental studies, with his collaborators, Dr Nemmar provided biological plausibility for the associations between particulate air pollution and cardiorespiratory events. In this context, Dr Nemmar has investigated the translocation of inhaled ultrafine pollutant particles in humans and hamsters, and the mechanisms of their acute cardiopulmonary effects. Dr Nemmar intends to further clarify the acute and chronic cardiopulmonary effects of pollutant particles, and to develop pharmacological approaches capable of preventing particle-induced cardiorespiratory complications. Moreover, epidemiological studies indicate that the effects of air pollution are more pronounced in "susceptible" subjects, such as the elderly, diabetics or hypertensive. Dr Nemmar will verify this hypothesis by extending his experiments in a relevant animal model of enhanced susceptibility (spontaneously hypertensive and diabetic animals).

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 lipoxigenase 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.

Recently we have shown that the gene for the BLT2 leukotriene receptor is switched on in all pancreatic intraepithelial neoplasias (PanIN lesions), which are the precursor lesions for pancreatic cancer. The BLT2 receptor is also upregulated in pancreatic cancer tissues. Overexpression of these BLT2 receptors provides a growth advantage compared with the wild type cells, while knockdown of overexpression using siRNA causes growth inhibition. These findings suggest that the BLT2 receptor would be valuable target for chemoprevention or therapy of pancreatic cancer.

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.

New studies on the 5-lipoxygenase (5-LOX) pathway have focused on colonic cancer. 5-LOX expression was detected in all adenomatous colonic polyps that were studied but not in normal colonic mucosa or in hyperplastic polyps. These adenomas are the precursor lesions for human colonic cancer. Inhibitors of the 5-LOX pathway block growth of colonic cancer cells in vitro and also when transplanted into athymic mice. These important findings suggest that 5-LOX inhibitors may be valuable in the chemoprevention of colonic cancer in humans.

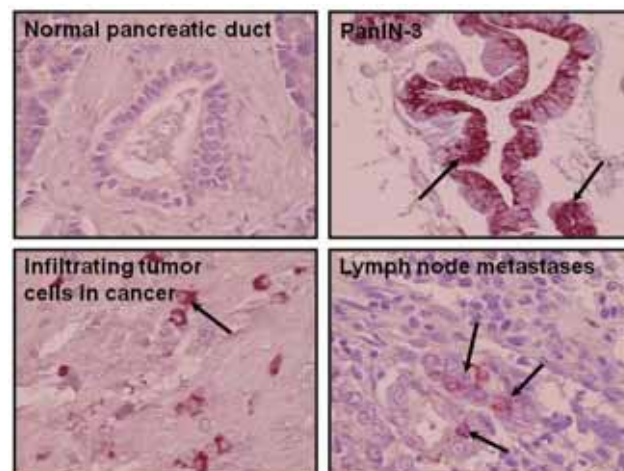
DIABETIC NEUROPATHY AND RETINOPATHY

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.

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.



Immunohistochemical localization of BLT2 in human pancreatic tissues stained by the AP-Red system. Pictures include an unstained duct in normal pancreas; a PanIN-3 lesion with intense cytoplasmic staining; infiltrating tumor cells in a pancreatic cancer with marked positive staining in the cytoplasm; positive stained tumor cells in a lymph node metastasis (all x400).

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slow wave activity: initial results. IEGGS May 2009.

O'Grady G, Du P, Egbuji JU, Lammers WJ, Cheng LK, Windsor JA, Pullan AJ. (2009). The origin and propagation of gastric slow wave activity. Annual Scientific Meeting, New Zealand Society of Gastroenterology, Wellington, 2009.

O'Grady G, Du P, Egbuji JU, Lammers WJEP, Cheng LK, Pullan AJ, Windsor JA. (2009). Intra-operative high-resolution mapping of human gastric slow wave activity. International Surgical Week, Adelaide, Australia, 2009.

O'Grady G, Du P, Egbuji JU, Lammers WJEP, Cheng LK, Pullan AJ, Windsor JA. (2009). A novel device for the minimally-invasive measurement of gastrointestinal slow wave activity. International Surgical Week, Adelaide, Australia, 2009.

O'Grady G, Du P, Egbuji JU, Lammers WJEP, Cheng LK, Pullan AJ, Windsor JA. (2009). Intra-operative mapping of human gastric slow wave activity: initial results. Royal Australasian College of Surgeons' Annual Scientific Congress, Brisbane, Australia, 2009.



RESEARCH GRANTS

FMHS Research Grants

Profs TE Adrian (PI), JFB Morrison
Gene Expression in Diabetic Retinopathy and Cataract.

Prof WJEP Lammers (PI), Mirghani H, Stephen B, M Al-Sultan
Spatial and temporal patterns of contractions in the intact isolated pregnant guinea pig uterus.

Prof C Howarth (PI)
The effects of fat-enriched diets on the progression of cardiac muscle dysfunction in the Goto-Kakizaki type 2 diabetic rat.

Drs A. Nemmar (PI) and S. Al-Salam
Evaluation of the acute toxicity of

the systemic exposure to diesel particles.

Prof. A. Bellou (PI), Dr A. Nemmar, Prof. E. Kazzam and Dr S. Al-Salam
Effect of inhibition of ATP and voltage-dependent K⁺-channels on allergic immune response in brown Norway rats sensitized to ovalbumin.

Prof M Ljubisavljevic (PI).
Long-term rTMS effects on fatigue related changes in cortical excitability.

Seed grant

Prof. A. Bellou (PI), Dr A. Nemmar, Prof. E. Kazzam and Dr S. Al-Salam
Role of K⁺-channels in vasodilation induced by ovalbumin in brown Norway sensitized rats.

UAEU Individual Grants

Prof C Howarth (PI)
Altered gene expression of ion transport proteins underlies ventricular arrhythmias in alloxan-induced non-insulin-dependent diabetic rats.

Prof WJEP Lammers (PI), Ver Donck L, Stephen B
Electrical propagations in the stomach of the guinea-pig *in vivo*.

Drs A. Nemmar (PI) and S. Al-Salam
Effect of diesel exhaust particles on cerebral microvessel thrombosis, pulmonary and systemic oxidative stress: Influence of a cysteine prodrug, L-2-oxothiazolidine-4-carboxylic acid.

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.

Sheikh Hamdan Award for Medical Sciences

Prof C Howarth
Remodeling of Ca²⁺ transport proteins underlies cardiac muscle dysfunction in the Zucker diabetic fatty rat.

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].

Emirates Foundation

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].

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

National Research Foundation

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].

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.

Award

Dr Nemmar received the Best poster award of European Association for Clinical Pharmacology and Therapeutics Congress, Edinburgh, 12-15 July 2009.

2009

Physiology



Standing left to right: Ms K Parekh; Mr Saeed; Professors FC Howarth, W Lammers; Dr A Nemmar; Professor M Ljubisavljevic, Mr S Dhanasekaran and P Rajagopalan.

Seated left to right: Ms SA Thomas, B Stephen, S Zia; Professors TE Adrian, M Fahim; Mr A Qureshi.

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



Department of Psychiatry and Behavioural Sciences

Professor & Chair:

Prof O El-Rufaie

Professor:

Prof. MR Sadeghi

Associate Professors:

Dr. K Dervic

Dr. R Ghubash

Dr. HF Moselhy

Dr. OT Osman

Assistant Professor:

Dr. L Amiri

Dr. MO Salem

Research Technician:

Mr S Yousef

Secretary

Ms A Al-Shamsi

Mr D. Ranganathan

Office Assistant:

Mr O Pocker

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 comorbidity 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) Affective and anxiety disorders in childhood and adolescence. (Dr. L. Amiri).
- (g) Effect of stress, depression, social support, and coping on psychological distress of patients with Ischemic heart disease. (Prof. M.R. Sadeghi).
- (h) Prevalence of Teenager depression in Al Ain. (Prof. M.R. Sadeghi)
- (i) Prevalence and correlates of suicidality in rural population of Pakistan. (Prof. M.R. Sadeghi).
- (j) Life satisfaction among older adults in UAE. (Dr. H. Moselhy).
- (k) The association of mental disorders with unhealthy behaviours among adults in UAE (Dr. H. Moselhy).
- (l) A survey of child and adolescent psychiatric services in United Arab Emirates, FMHS Students' Research Project (Supervisor Dr. K. Dervic).

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).

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).

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).

- (c) Research Training in Child & Adolescent Psychiatry at the Medical University of Vienna, Austria. (Dr. K. Dervic).

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.

Articles in Peer-reviewed Journals

Blasco-Fontecilla H, Baca-Garcia E, Dervic K, Perez-Rodriguez MM, Lopez-Castroman J, Saiz-Ruiz J, Oquendo MA. (2009). Specific features of suicidal behavior in patients with narcissistic personality disorder. *Journal of Clinical Psychiatry* 70(11); 1583-7. Epub 2009 Jul 14.

Dervic K, Lenz G, Friedrich MH. (2009). Research skills training for child psychiatry residents. *European Child and Adolescent Psychiatry*, 2009 Nov 19. [Epub ahead of print].

Ghubash R, El Rufaie O, Moselhy H. (2009). Subjective life satisfaction and mental disorders among UAE elderly population. *International Journal of Geriatric Psychiatry* 24;1-8.

Huemer J, Karnik N, Völkl-Kernstock S, Granditsch E, Dervic K, Friedrich MH, Steiner H. (2009). Mental health issues in unaccompanied refugee minors. *Child and Adolescent Psychiatry and Mental Health* 3(1); 13.

Moselhy H. (2009). Comorbid post traumatic stress disorder (PTSD) and opiate dependence syndrome. *Journal of Dual diagnosis* 5(1);30-40.

Niederkroenthaler T, Till B, Kapusta ND, Voracek M, Dervic K, Sonneck G. (2009). Copycat effects after media reports on suicide. A population-based ecologic study. *Social Science and Medicine* 69(7); 1085-90.

Osman OT, Younis A. (2009). A Case of Infanticide Attempt by a Post Partum Depressed Mother. *J Emergency and trauma Med (JEMTAC)* 8; 122-123.

Salem MO, Saleh B; Yousif S; Sabri S. (2009). Help seeking behaviour among psychiatric patients attending Al-Ain Hospital. *International Journal of Social psychiatry* 55(2); 141-148.

Salem MO, Abdul Latif M, Yousif S. (2009). Significance of Dreams among United Arab Emirates University Students. *International Journal of Dream Research* 2(1); 29-32.

Salem MO. (2009). The Heart, Mind and Brain, Review Article. *Arab Journal of Psychiatry* 20(2); 161-168.

Voracek M, Loibl LM, Dervic K, Kapusta N, Niederkroenthaler T, Sonneck G. (2009). Consistency of immigrant suicide rates in Austria with country-of-birth suicide rates: A role for genetic risk factors for suicide? *Psychiatry Research* 170(2-3);286-9.

Younis A, Ibrahim W, Moselhy H. (2009). The abuse of corticosteroids among Iraqi for weight gain purpose in Babylon, Iraq: a unique experience. *Journal of addictive disorder and their treatment*, 8(2); 61-71.

Younis A, Moselhy H. (2009). A nation under siege: The 15-year outcome of Iraqi patients with schizophrenia in Babylon, Iraq. *Mental Health Journal*, 18(5); 398-404.

Younis AA, Al-Admawi WI, Yousef S, Moselhy HF. (2008). Psychiatric Disorders in Iraqi Juvenile Delinquents during Sanction Period. *International Journal of Criminal Justice Sciences* 3(2); 129-137.

Books, Chapters, Reviews and Editorials

Osman OT. (2008). The Psychological Aspects of Skin Diseases. In *Skin and Cosmetics*, pp.133-160, Galadari I. (edit.), Port-Seed Press, Dubai.

Salem MO, Foskett J. (2009). Religion and Religious Experiences, Chapter 12, In Cook C, Powell, A, Sims A. (Eds.), *Spirituality and Psychiatry*: 233-253. Royal College of Psychiatrists Publications, UK.

Published Abstracts, Letters and Correspondence

Osman OT, Sabri S, Rizk DD, Alraeesi H, Shamsan A. (2008). Symptoms Expression of Premenstrual Dysphoric Disorder in the United Arab Emirates. *Psychosomatic Medicine*, 70(3), A82.

Proceedings, Conferences, Invited Lectures, Web Sites and Others

Alamgir A, Shah SM, Sadeghi MR, Bano Z. (2009). Prevalence and correlates of suicidality in a rural population of Pakistan. The 6th International Scientific Conference for Medical Students in the GCC Countries. Al-Ain, UAE, 18 - 21 January.

Dervic K. (2009). vfwf-Universitätsvorlesung 2009. Research Training in Kinderpsychiatrie. Vienna, Austria, 17 June.

Dervic K (2009). Child and adolescent psychiatric services in UAE: Availability and needs. Abstract Book. The 1st SEHA (Abu Dhabi Health Service, UAE) Research Conference, 13-14. Dec, Al Ain, UAE.

Dervic K, Carballo JJ, Baca-Garcia E, Osman OT, Oquendo MA. (2009). Religious affiliation and suicidal behavior in patients with bipolar disorder. *New Research Abstract Book. 162nd Annual Meeting of American Psychiatric Association (APA)*, San Francisco 16.-21 May, USA.

Dervic K. (2009). International suicide rates among children: An Overview. Abstract Book.12. International Congress of the International Federation of Psychiatric Epidemiology (IFPE), Vienna 16.-19 April, Austria.

Dervic K. (2009). Religious affiliation and suicidal behavior. Abstract book. 2. Conference of the International Association of Muslim Psychologists (IAOMPSY), Sharjah 2.-4 Feb, UAE.

Eldosoky A, Moselhy H, El-Islam F. (2009). Interface between the Global and local worlds. Symposium. Culture Psychiatry and Globalization. Italy, September.

Osman OT. (2008). Effective Strategies for Management of Bipolar Disorder. 4th Gulf Bipolar Disorder Meeting, Luxor, Egypt, 22 February.

Osman OT. (2008). Co-Morbidity of Anxiety-Depression and Medical Conditions In The Primary Care. Workshop On Primary Care Psychiatry, Al-Ain, UAE, 17 May.

Osman OT. (2009). A Multidisciplinary Understanding of Fear and Anxiety Conditions. Harvard Medical School Dubai Center Conference on Mental Health Updates. Dubai, 4 June.

Osman OT. (2009). Developing Psychiatry Residency Training Program in The United Arab Emirates: Challenges and Opportunities. 38th Annual Meeting of the American Association of Directors of Psychiatric Residency Training. The Mind At Its Best: Empathy, Learning and Belief. Tucson, Arizona, USA. 11-15 March.

Sadeghi MR. (2009). Progressive muscle relaxation training. The 6th International Scientific Conference for Medical Students in the GCC Countries. Al-Ain, UAE, 19 and 20 January.

Sadeghi MR. (2009). The behavioral and clinical effects of therapeutic lifestyle change in primary health care patients. Muijei health care center, Al-Ain, UAE, 12 March.

Sadeghi MR. (2009). Roles of stress, depression, social support, and coping on psychological distress of cardiac patients. Modarress hospital, Tehran, 13 July.

Salem MO, Abdul Latif M, Yousif S. (2009). Significance of Dreams among United Arab Emirates University Students, Earth Dreaming: 50. The 26th Annual Conference of the International Association for the Study of Dreams (IASD), Chicago, USA, 26-30 June.

Salem MO (2009). An Islamic Theory for the Mind. The 5th SELF International Biennial Conference, Book of Abstracts: 83, Al Ain, UAE, 13-15 January.

Salem MO, Younis AA, Saleh B, El Banna A, Yousif S. (2009). Effect of Dreams on psychiatric Patients in a UAE Study. Proceedings of the First Annual SEHA Research Conference: 143, Al Ain, UAE, 13-14 December.

Salem MO, Abdul Latif M, Yousif S. (2009). The Attitude of Students of the UAE University towards their dreams and its impact on their behaviour and emotions. 2nd International Conference for Muslim Psychologists Association, Abstract Book:60, Sharjah, UAE, 2-4 February.

Salem MO. (2009). Theories and methods of dream research. The 6th International Scientific Conference for Medical students in the

GCC Countries, Al Ain, UAE, 18-21 January.

Salem MO, (2009). Spiritual and Religious Interventions in Psychiatry and Psychotherapy. 9th Annual Jeddah Psychiatry Symposium, Jeddah, Saudi Arabia, 4-5 March.

Salem MO. (2009). Modern Approaches in Scientific Dream Research. The 5th International Psychiatry Conference, Jeddah, Saudi Arabia, 28-30 April.



RESEARCH GRANTS

FMHS Research Grants

Dr K Dervic (PI)
Suicides in Abu Dhabi Emirate.
[NP/09/06]
Seed Grant

Dr K Dervic (PI)
Suicides in Dubai 1992-2009, with particular emphasis on suicides among teenagers.

UAEU Interdisciplinary Grants

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

Others

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



2009
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.

Trauma (Peter Corr)

Trauma imaging is an important part of our daily work and road traffic accidents a major cause of morbidity and mortality in the UAE. We have been working with colleagues in orthopaedic surgery to establish the role of radiographs and three dimensional computed tomographic models of the skeleton have in assessing the type and extent of fractures.

Sports Medicine Imaging (Peter Corr)

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.

Osteoporosis and Body Fat Composition in Peri-Menopausal Women (Peter Corr)

Osteoporosis is an under recognized health problem in UAE national women and is the major cause of bone fractures in older women. We measured the bone density and body fat composition of peri-menopausal women living in Al Ain to determine if there is a direct correlation between the body composition values (percentage body fat and lean mass) and bone mineral density using dual energy X-ray absorption (DEXA) scans. This study demonstrated a significant correlation between lean body mass and bone density in peri-menopausal women but no association between bone density and body fat composition.

Contrast medium research (Ruth Langer/ Klaus van Gorkom)

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 experi-

ments ongoing]; collaboration with the FMHS Departments of Pharmacology, Anatomy, and international collaboration with 'Experimental Radiology', Charité University, Berlin / Germany.

Development of Nanoparticle Contrast Agents that detect Cancer Angiogenesis (Peter Corr)

We are investigating with researchers from the Faculty of Engineering's Centre for Nanotechnology rare earth gadolinium and iron nanoparticles for the detection of neoangiogenesis 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.

Thalasemia (Peter Corr)

Thalasemia 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 thalasemic patients treated at 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 thalasemic patients. Chelating drugs are now available to remove the excess iron and prevent this heart complication from occurring.

Neuroimaging (Klaus van Gorkom)

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 allows for morphometric, fine-structural as well as for functional examinations. We are working at the implementation of sophisticated software (FSL & FreeSurfer, 3D Slicer) 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

Conca W, Al-Hakim M, Moussa N, Al-Salam S, Corr P. (2009). Hypoferritinemia in a woman with systemic lupus erythematosus, severe nephritis and an iron-rich intraspinal schwannoma mimicking lupus myelopathy Clin Exp Rheumatology,27:810-813.

Mahmoud-Ghoniem D, Amin A, Corr P. (2009). MRI-based texture analysis as a potential non-invasive approach to assess potential protection against induced liver fibrosis Radiol Oncol;43(1): 30-40

Langer RD, Usmani A, Neidl van Gorkom K, Petroianu G, Lorke DE, Azimullah S Nurulain SM. (2009). In vitro assessment of the antibiotic efficacy of contrast media and antibiotics at various dilutions. Published online before print August 18, 2009; Brit J Radiol, Aug 18.



Published Abstracts, Letters and Correspondence

Langer RD, Petroianu G, Lorke DE, Neidl van Gorkom K, Hassan MY, Usmani A, Azimullah S, Nurulain SM. (2009). In-vitro Studie zur Wirksamkeit der Kombination von Antibiotika und Roentgen Kontrastmitteln bei der Diskographie. Fortschr Roentgenstr, 181 (S 1), 272



Proceedings, Conferences, Invited Lectures, Web Sites and Others

Corr P (2009). Teaching Radiology using PBL. Association for Medical Education in Europe Meeting August 2009 Malaga Spain.

Langer RD, Usmani A, Neidl van Gorkom K, Nurulain SM, Petroianu G, Lorke DE, Azimullah S. (2009). In Vitro Study of the Efficacy of Adding Antibiotics to Contrast Media at Discography to Inhibit Bacterial Growth. Abstract-Book. 10th UAEU Research Conference, 2009, 197



RESEARCH GRANTS

FMHS Research Grants

RD Langer and co-workers: 'Investigation of the development of nephrogenic systemic fibrosis (NSF) after intra-peritoneal administration of gadolinium-based contrast agents (GBCA).



2009

Radiology



Standing 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.

All Faculty members have Consultant privileges at Al Ain and Tawam Hospitals.

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.



Professor & Chair:

Prof FJ Branicki

Professor:

Prof F Abu-Zidan

Prof F Safi

Associate Professor:

Dr F Hammad

Dr F Torab

Assistant Professor:

Dr A Al Belooshi

Dr Z Al Fardan

Dr T Al Mahmoud

Dr S Al Thani

Dr A Jawas

Teaching Assistant:

Dr MA Al Ali

Medical Research Specialist:

Ms M Al Mansouri

Mr L Lubbad

Medical Secretary:

Ms R Al Mansouri

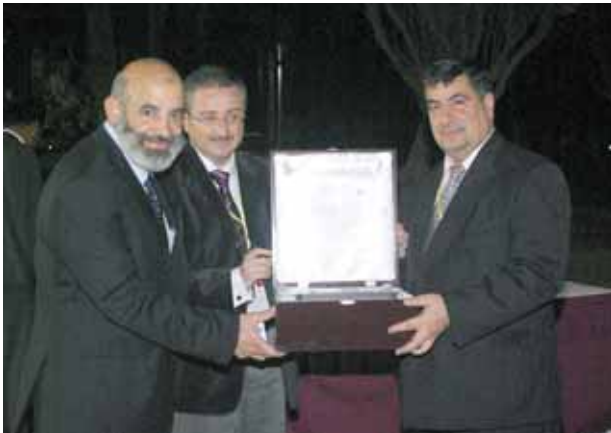
Secretary:

Mr AC Jamal

Office Assistant:

Mr C Aboobacker

These activities led him to presentations in 2009 in Al Ain, Abu Dhabi, Buraimi and Dubai as well as overseas in Krakow (Poland) and Kigali (Rwanda). Collaborations with departmental (Prof Fikri Abu Zidan, Assoc Prof Fawaz Torab) and hospital colleagues led to publications relating to perforated peptic ulcer, trauma registry outcomes and peritoneal sepsis in an experimental animal model. In addition, collaboration with Prof. Sherif Karam has involved experimental studies relating to gastric cancer conducted by a Master's student under supervision in Prof Karam's laboratory, this work being funded by research grant from the Terry Fox Foundation. 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.



Professor Farouk Safi

Prof. Farouk Safi's clinical interests in colorectal and hepatobiliary surgery have generated material for presentation 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, Abu Dhabi, Dubai and Umm Al Quwain and in Europe (Copenhagen and Milan). Currently, Prof Safi's clinical practice has generated data relating to surgical interventions for hepatic and pancreatic malignancy and colorectal resections.

Professor Fikri Abu Zidan

In 2009 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 Faculty of Medicine 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 2009 he published 12 articles/reviews in international refereed Journals. At present he is studying seatbelt injuries, damage control surgery and camel related injuries. He has been able to raise external funds to appoint a Research Fellow (Dr Alaa Abbas) who is investigating seatbelt injuries. A more senior Research Fellow will join the Trauma Group (Dr Ashraf Hefny) to study management of abdominal trauma.

Professor Abu-Zidan was the Chair of the Organizing Committee of the International Conference: Trauma Management, Critical Care and Prevention which was held on 18-21 February 2009, in Al-Ain City.



Professor Abu-Zidan's research activities in occupational injuries and road traffic collisions attracted a good deal of media attention in 2009 with major coverage on the need for prevention of occupational injuries and the legislation of rear seat belts in the UAE. He continued his scholarship activities being a Guest Editor for the Disaster and Military Surgery Section of the European Journal of Trauma and Emergency Surgery. Furthermore, he received the Singapore Medical Journal Recognition Award for "Reviewing with Distinction".

Associate Professor Fayez Hammad

Assoc Prof. Fayez Hammad has particular clinical interests in oncology and minimally invasive surgery for renal stone disease in particular. He is the Founding program Director for our newly established Residency training program in Urology. Assoc Prof. Fayez Hammad continued his research on "The effect of NSAIDs (non-steroidal anti-inflammatory drugs) on the obstructed kidney" funded by a Seed Grant from the Faculty of Medicine and Health Sciences, 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). After analyzing the data, Dr Hammad decided to perform studies in two other groups with ureteric obstruction for five days.

Dr Hammad also continued his work on the "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 resulted in an abstract which was accepted for presentation at the European Association of Urology and the American Urological Association meeting. In addition, a manuscript has been submitted for publication. The second phase has almost finished and data are currently being analyzed. The research was

funded by an Individual 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 commenced on a new project "The effect of curcumin on the obstructed kidney in the rat". Assoc Prof Fayez and his co-investigator Mr Loay Lubbad, Laboratory Manager, have already established the model and commenced experimental studies.

Associate Professor Fawaz Torab

Promoted to Associate Professor in 2009 Dr Fawaz Torab received the Dean's 2009 Recognition Award, Faculty of Medicine and Health Sciences and is 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 in collaboration with researchers in the USA.



Assoc Prof Fawaz 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 Fawaz 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 Dr Fawaz 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 intermediately (Lebanon, Yemen) 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 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. Dr. Fawaz also co-organized a "Bariatric Study Day", at Tawam Hospital. He has made significant contributions with presentations nationally in Al Ain, Abu Dhabi and Dubai and in Syria.

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.

Assistant Professor Tahra AlMahmoud

Assistant Professor Tahira 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.

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. He was course Chairperson for the AO ORP Course in Dubai in 2009. He made presentations in 2009 in Egypt, Saudi Arabia, the USA as well as in the UAE.

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 served in 2009 as an Instructor for an AO Course of Orthopaedic operating personnel in Dubai.

Assistant Professor Zuhair Al Fardan

Assistant Professor Zuhair Al Fardan completed Residency training in Plastic and Reconstruction Surgery in Toronto, and subsequently 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 offer for the 'Hand Surgery Club, UAE' and co-founder of the 'Abu Dhabi Plastic Surgery Club'. He is also a active faculty member of AO-trauma Middle East which conducts hand surgery workshops countrywide. 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, undertook a short term period of training in Toronto for three months in 2007 and commenced a Residency training opportunity 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, followed by an ATCN Instructor course and a second Provider Course in November 2008.

These activities run in concert with ATLS courses are made possible with the enthusiastic participation of Instructors from Tawam Hospital. In 2009 the Department hosted three ATLS and 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 multi-disciplinary 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.

Continuing Medical Education

The Department has organized a number of CME/CPD activities including an International Surgical Conference with more than 600 delegates held in Abu Dhabi in October 2003. Prof. Branicki chaired the Organizing Committee for a highly successful International Conference – Recent Advances in Clinical Oncology Conference which took place in February 2007, Prof. Tjernstrom, Prof. Safi, Prof. Younge and Dr. Torab, Chair of the Sponsorship Committee, also being involved in the organization of the Conference and its program. This was held in Al Ain United Arab Emirates, from February 19-22, 2007. The meeting was organized by the Oncology Research Group, an initiative of the Faculty of Medicine and Health Sciences at the United Arab Emirates University. Abstracts of Invited Faculty presentations, free papers and posters were published in a special supplement of the Emirates Medical Journal [EMJ 2007; Vol 25(1 suppl.)] with the support of the Sheikh Hamdan Foundation. The Proceedings of the meeting (Eds: Prof. Branicki, Dr. Saad Aswad, Dr. Fawaz Torab, Prof. Abdu Adem)



were published in a volume of the Annals of the New York Academy of Sciences (Vol 1138) published in September 2008 more than 40 chapters (403pp) being included.

The Trauma Group chaired by Prof. Fikri Abu-Zidan organized an international Conference entitled 'Trauma Management, Critical Care and Prevention. The conference took place at the Intercontinental Hotel and Resort in Al-Ain on 17-19 February 2009. The Conference was an initiative of the Trauma Group at the Faculty of Medicine and Health Sciences (FMHS), United Arab Emirates University in association with Tawam Hospital in affiliation with Johns Hopkins Medicine, Al Ain Hospital managed by Medical University of Vienna and VaMed, General Health Authority for the Emirate of Abu Dhabi and Sheikh Hamdan Awards for excellence in Medical Sciences. Prof. Fikri Abu Zidan chaired the Organizing Committee, Prof. Branicki chaired the Scientific Committee and Assoc Prof Fawaz Torab chaired the Sponsorship Committee. The conference attracted 400 delegates. Professor Abu-Zidan supervised several free oral and poster presentations in the conference and he helped with the training of four surgical residents in research methodology, who have now had opportunities to present research nationally and overseas.

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Safi F. (2009). Which surgery? Which time in inflammatory bowel disease? Inflammatory Bowel Disease Club meeting. Dubai. UAE.
Safi F. (2009). Surgical solution for HCC. Emirates Medical Society Meeting. Dubai. UAE.

Shaban S, Ashour M, Bashir M, El-Ashaal Y, Branicki F, Abu-Zidan FM. (2009). The long term impact of early analysis of a trauma registry. Proceedings: International Conference – Trauma Management, Critical Care and Prevention. Al Ain, UAE.

Shaban S, Eid H, Barka E, Abu Zidan FM. (2009). Technical development and evolution of a trauma registry in the UAE. Proceedings: International Conference – Trauma Management, Critical Care and Prevention. Al Ain, UAE.

Shobhana PK, Nair D, Al Mahmoud T, Azeem AA, Moh'd AA, Al Shamsi H. (2009). Visual outcome of ocular trauma in camel hit and robot jockey hit injuries. SEHA Research Conference. Al Ain, UAE.

Torab FC. (2009). Revisional bariatric surgery. Arab Health Middle East Surgery Conference. Dubai, UAE.

Torab FC. (2009). Role of laparoscopy in trauma. International Conference: Trauma Management Critical Care and Prevention. Al Ain. UAE.

Torab FC. (2009). Revisional bariatric surgery-local experience. 4th Abu Dhabi International Surgery Conference, Abu Dhabi, UAE.

Torab FC. (2009). Bariatric surgery overview. Bariatric Study Day, Al Ain, UAE.

Torab FC. (2009). Laparoscopic treatment of metabolic syndrome in patients with Type II diabetes. Tawam Surgical Grand Rounds, Al Ain, UAE.

Torab FC. (2009). Cutting things down to size: bariatric surgery. The A-Z of Obesity Treatment. Abu Dhabi, UAE.

Torab FC (2009). Ethics in every day practice for PHC Health Professionals. CME Department-AHS-SEHA. Al Ain. UAE.

Torab FC. (2009). Status of surgical treatment for morbid obesity: own and international results. The annual meeting of the Syrian Diabetes Association, Lattakia, Syria.
Torab FC. (2009). Bariatric surgery: International and Local Experience. Abu Dhabi Gastroenterology, Hepatology and Endoscopy Club (ADGHE Club), Abu Dhabi, UAE.

Torab FC. (2009). Bariatric surgery in obesity management: risks and benefits. Dubai Congress on Anti-aging and Aesthetic Medicine, Dubai, UAE.

Torab FC. (2009). SILS Bariatric surgery: preliminary results. IXth MMESA Congress, Damascus, Syria.

Torab FC. (2009). Intraoperative pitfalls in bariatric surgery: reasons and management. IXth MMESA Congress, Damascus, Syria.

Torab FC. (2009). Revisional bariatric surgery. IXth MMESA Congress, Damascus, Syria.

Others

Prof FM Abu-Zidan
Ultrasound training and education.
Education Grant SonoSite Ltd.



RESEARCH GRANTS

FMHS Research Grants

Dr F Hammad
The effect of gradual restoration of blood flow on ischemia-reperfusion injury in the rat kidney.

Seed Grant

Dr T Al Mahmoud
Animal model of experimental autoimmune uveitis in Galactin-3 knockout mice.

2009

Surgery



*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*

<http://www.fmhs.uaeu.ac.ae/DepartmentsSurgery> Tel: 7672000 / Fax: 7672067

Research Priority Groups

Diabetes and Cardiovascular

Genetics and Development

Immunology and Immunoregulation

MERGE

Neurosciences

Oncology

Trauma



Diabetes and Cardiovascular Research Priority Group

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 Diabetes Mellitus and Its Complications, April 4, 2009

The DCRG organized a one-day Annual Workshop on Diabetes Mellitus and Its Complications on Saturday, April 4, 2009 at the Faculty of Medicine & Health Sciences, United Arab Emirates University. The Workshop attracted more than 400 delegates across the UAE and abroad. In addition to local delegates, we hosted 2 international figures in the field of diabetes, Dr. Peter Senior, Associate Professor, Endocrinology Division, University of Alberta, Canada and Dr. Masayuki Baba, Chairman & Clinical Professor of Neurology, Hirosaki University School of Medicine, Japan.

The Workshop covered different areas of diabetes including:

- Islet transplantation.
- Insulin pump.

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 42 other faculty members from within the FMHS.

- Self monitoring of blood glucose and its implications on glycemic control.
- Management of Type 2 Diabetes.
- Diabetic neuropathy.
- Prevalence of peripheral diabetic neuropathy and peripheral vascular disease among type 2 diabetic in Al Ain Medical district.
- Genetics of diabetes.
- UAE University Individual Grant (2009), "The effect of incretin on gene expression in pancreatic islet cells in diabetes mellitus".
- FMHS Grant (2009), "Spexin, Cellular distribution and effect in the endocrine pancreas of streptozotocin-induced diabetic rats".
- Sheikh Hamdan Bin Rashid Al Maktoum Award for Medical Sciences (2009-2010), "Effect of pancreatic beta cell transplantation on the metabolic parameters of diabetic rats".
- National survey of Diabetes and its complications in the UAE-Abu Dhabi phase. Supported by a research grant from the Emirates Foundation.

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

- Sheikh Hamdan Bin Rashid Al Maktoum Award for Medical Sciences (2009-2010), "Remodeling of Ca²⁺ transport proteins underlies cardiac muscle dysfunction in the Zucker diabetic fatty rat".
- FMHS Project Grant (2009), "The effects of fat-enriched diets on the progression of cardiac muscle dysfunction in the Goto-Kakizaki type 2 diabetic rat".
- UAE University Individual Grant (2009), "Altered gene expression of ion transport proteins underlies ventricular arrhythmias in alloxan-induced non-insulin-dependent diabetic rats"; 2008-2009.
- National Research Foundation Grant (2009), "Genes and Diseases". Funding given to a group of researchers to support the creation of a research centre in the field of genetics and disease".

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

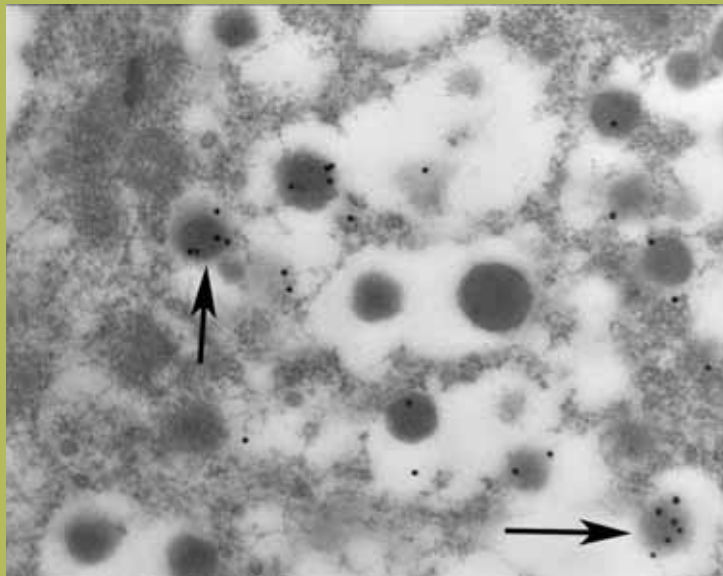
The group is planning to establish a Diabetes Research Centre. The centre will provide a facility that enables and facilitates a multidisciplinary approach to the study of diabetes and its complications and to provide the infrastructure for diabetes related undergraduate and post-graduate research and 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 Molecular and Cellular Biochemistry, Pharmacological Research, Cardiovascular Diabetology, Journal of Diabetes & Its Complications, Peptides, Autonomic Neuroscience, Journal of Pancreas, Journal of Acquired Immune Deficiency Syndrome, International Archives of Allergy Immunology, Reviews in Diabetic Studies, American Journal of Preventive Medicine, Journal of American Dietetic Association, Current Eye Research, Neuroendocrinology Letters, Islets, Journal of Obstetrics and Gynaecology, Metabolic Syndrome and Related Disorders, BMC Endocrine Disorders, Nutrition, Metabolism and Cardiovascular Diseases, and Journal of

Nutrition in 2009. The cumulative impact factors of these journals exceeded 62 (See Departments of Anatomy, Biochemistry, Community Medicine, Pathology, Pharmacology, Physiology, Psychiatry, Internal Medicine and Medical Microbiology for relevant publications).



Transmission electron micrograph showing insulin-containing secretory granules (arrows) of rat pancreatic beta cell immuno-labelled with gold particles. Magnification: X 27,500



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 150 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 has 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.
- (3) to seek new approaches to diagnosis, treatment and prevention of such disorders.

Our mission is also to educate the next generation of health care leaders by providing continuing professional development to physicians with up to date courses and to educate the public by providing information on different genetic disorders and approaches to prevention.

The Group Principal Investigators and their Research Interests

Principal investigators members of the Genetics and

Development Research Group are affiliated to different departments within the Faculty of Medicine and Health Sciences of the UAE University. The current membership of the group is:

Dr. Bassam R Ali (Pathology Department); Associate Professor of Molecular Genetics and Leader of the Genetics and Development Research Group.

Research interests:

- (1) Elucidation of the molecular defects responsible for genetic disorders in the UAE and Arab populations.
- (2) Establishing the cellular mechanisms of genetic disorders.

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.
- (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.

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); Assistant 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); Associate 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 Clinical Affairs and senior consultant Radiologist.

Prof. Miodrag Lukic (Medical Microbiology Department); Professor and Chair of Medical Microbiology.

Dr. Hisham Mirghani (Obs/Gyne Department); Associate Professor.

Research interest:

prenatal diagnosis.

Dr. Hassib Narchi (Paediatrics Department); Associate Professor.

Research interests:

Causes and mechanisms of common diseases in

Middle Eastern populations.

Prof. Tahir A Rizvi (Medical Microbiology Department); Professor.

Research interest:

Retroviral/lentiviral vectors for human gene therapy.

Dr. 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.

Collaborations of the group members with UAE, regional and international organizations:

Local collaborations

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

Regional collaborations

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

International collaborations

- International Clearing House for Birth Defect Monitoring System [member]
- Harvard University, USA
- University of California, San Diego
- Cambridge University, UK
- Birmingham University, UK
 - Imperial College London, UK
- University College London Medical School, UK
- National Human Genome Research Institute
- National Institute of Health, Bethesda, USA
- Institute of Human Genetics, Erlangen,

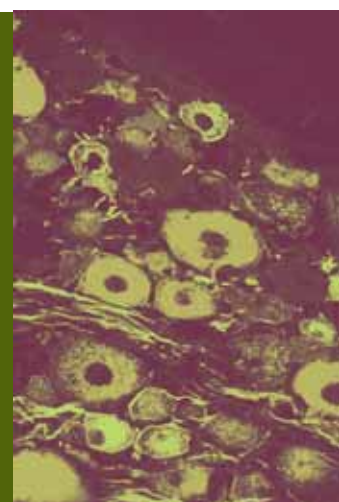
Germany

- Mount Sinai School of Medicine, New York, USA
- Telethon Institute of Genetics and Medicine Naples, Italy
- UT Southwestern Medical Center at Dallas, USA
- Institute fur Medizinische Genetik, Berlin, Germany
- Cincinnati Children's Hospital, OH, USA
- University of Ottawa, Canada
- Medical University of South Carolina, Charleston, South Carolina

Grants and Publications

Refer to departmental reports for grants and full publications of individual members.

The Immunoregulation and Infection Research Priority Group



The main aim of the Immunoregulation and Infection Research Priority Group (IIRPG) is to promote basic and clinical research in the fields of 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.

1. Launch of the IIRPG Lunch Seminar Series

In 2009, the Group initiated a monthly series of informal seminars called "Lunch Research Seminar" to be given by members of the Group. The main purpose of these seminars is to discuss current research projects in a relaxed and informal atmosphere. The seminars are held over the lunch break (1-2 pm) with light lunch being also provided to emphasize the informality of the meetings. The meetings are characterized by first class science and very good attendance, not only by core members of the Group but also by graduate students and research assistants. The relaxed atmosphere allows audience to ask questions freely which results in very lively interactions. In the future, PhD students will be invited to deliver a seminar in this setting to discuss progress in their research projects.

A list of the lunch seminars held in 2009 is given below:

April 22, 2009, "Regulatory T cells and ST2 signaling control diabetes" By Dr. Eric Mensah-Brown.

May 20, 2009, "Chronic granulomatous disease" By Dr Suleiman Al-Hammadi.

Oct. 21, 2009, "Induction of anti-microbial immunity by the cholinergic nervous system" By Dr. Maria J. Fernandez-Cabezudo.

Nov. 25, 2009, "Are frog skin antimicrobial peptides

Group Leader:

Prof Basel al-Ramadi

Core Members:

Prof Miodrag L. Lukic

Prof Senarath

Dissanayake

Prof Michael Ellis

Prof S. Uduman

Prof J. Michael Conlon

Prof Tahir A. Rizvi

Prof Tibor Pal

Dr Walter Conca

Dr Eric Mensah-Brown

Dr Gulfaraz Khan

Dr Maria J. Fernandez-Cabezudo

Dr Suhail A. Al-Salam

Dr Fawaz Chikh Torab

Dr Suleiman Al-Hammadi

Dr Agnes Sonnevend

Dr Mariam Al-Shamsi

Dr Ahmed Al-Qahtani

Dr Ahmed Al-Suwaidi

neuropeptides as well?" By Dr. Michael Conlon.

Dec. 16, 2009, "Staphylococcus aureus in Al Ain"
By Dr. A Sonnevend.

2. Scientific Collaborations

Success in scientific research is dependent on collaborations between a multidisciplinary team of investigators. One of the key roles of the IIRPG is to promote scientific collaborations between its members, especially across traditional discipline boundaries. It is gratifying to note that this goal is becoming increasingly evident when one examines current and planned collaborations between Group members. Examples of such collaborations are listed below:

Immunoregulatory mechanisms in experimental autoimmune diseases.

Drs. Lukic, Mensah-Brown and Al-Shamsi.

Anti-microbial activity of novel frog skin peptides.

Drs. Conlon, Pal and Sonnevend.

Tumor immunotherapy.

Drs. al-Ramadi, Fernandez-Cabezudo and Al-Salam.

Molecular characterization of clinical isolates of S. aureus in the UAE.

Drs. Sonnevend and Pal.

Hepatocellular bioenergetics in concanavalin A-induced murine hepatitis

Drs. Conca, Souid, Mensah-Brown and Lukic.

Neuroimmune regulation by organophosphate compounds.

Drs. Fernandez-Cabezudo, Lorke, Petroianu, Hasan and al-Ramadi.

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

Drs. Al-Salam, Karam and Lukic.

Galectin-3 in respiratory bacterial infections.

Drs. Lukic, Pal, Sonnevend, Mensah-Brown.

Role of MyD88 and TLR signaling in defense against infections and breakdown of self tolerance.

Drs. al-Ramadi, Fernandez-Cabezudo, Conca and Al-Salam.

Virulence of the nosocomial pathogen Acinetobacter baumannii.

Drs. Pal, al-Ramadi and Sonnevend.

Novel resistance biomarkers in human breast cancer.

Drs. Fernandez-Cabezudo, El-Salhat, Taji, Jaloudi, Al-Salam, Rincon, and al-Ramadi.

3. 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.

4. Sponsored Events

The following international speaker was hosted by the Immunoregulation and Infection Research Priority Group during 2009.

October 14, 2009

Professor Raif Geha, MD

James L. Gamble Professor of Pediatrics, Harvard Medical School

Chief, Division of Allergy/Immunology/

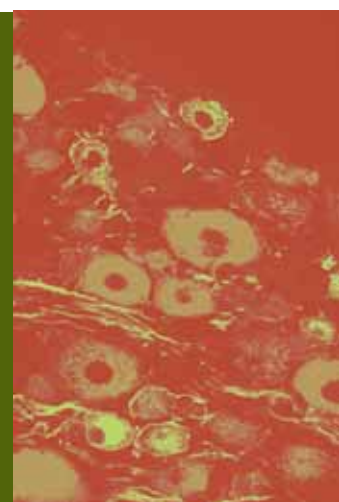
Rheumatology/Dermatology

Children's Hospital, Boston, USA.

Title of Presentation: "Wiskott Aldrich Syndrome"



Medical Education Research Group



Mission of the Group

To act as a co-ordinating body within the Faculty of Medicine and Health Sciences (UAEU) for individuals or groups interested in medical education in order to promote scholarly activities in teaching and learning locally, regionally and internationally.

PRIMARY AIMS include

- Developing an ethos of medical education research within the FMHS.
- Providing staff development to promote medical education research through workshops, journal clubs, etc.
- Providing guidance and resources for those interested in medical education research.
- Promoting and facilitating teaching and learning scholarship by publishing research in peer-reviewed journals, conference attendance, etc.
- Co-ordinating medical education research activities within the FMHS.
- Promoting medical education research with the Gulf region and internationally by establishing networks of collaborators.
- Securing funding for medical research activities.
- Establishing focus areas in research in terms of the current and future trends in medical education.
- Communicating results of research activities to decision- and policy-makers.
- Involving students in the activities of MERGE, wherever appropriate.

Group Leader:

Prof M McLean

Core Members:

Prof E Adeghate

Prof P Corr

Prof C Howarth

Prof R Sadeghi

Dr M Grivna

Dr H Narchi

Dr S Shaban

Ms G Kershaw

Activities

MERGE meets every second month to discuss current issues in medical education, particularly in terms of possible research projects at the undergraduate and post-graduate level.

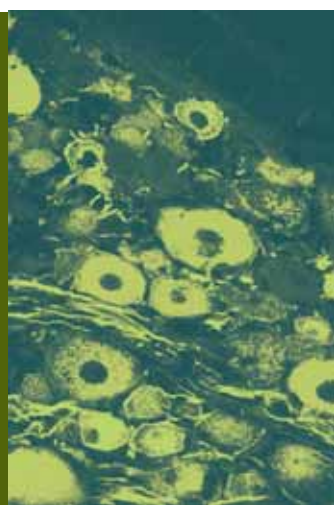
RESEARCH ACTIVITIES

1. **Transferable/generic skills audit:** 3 year study completed (McLean, Shaban).
2. **Female and male medical students' perceptions of the practice of medicine:** Collaborative work done with the University of KwaZulu-Natal. Follow-up interviews with UAEU interns have been transcribed (McLean).
3. **Student project 1:** Female Emirati patient choice of a physician and their experience with medical students. Results presented at various student and international conferences. Paper to be published in *Medical Education* in early 2010 (McLean, medical students).
4. **Student project 2:** Meeting the competencies of the CanMEDS roles in the FMHS curriculum. Where are they being met? What activities contribute to their development? MSC1 students began during the summer. Poster presentation, GCC conference, Al Ain, January 2009 (McLean, medical students).
5. **Development of a website for the Clinical Skills Training Centre** for online registration and evaluation [<http://www.fmhs.uaeu.ac.ae/cstc/>] (Shaban, Torab).
6. **Predictors of Medical School Performance:** To examine the predictive ability of multiple indicators on academic performance at medical school (Shaban, McLean).
7. **Development 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).

8. **Development of a Residency Management Website** for the residency programs at Faculty of Medicine and Health Sciences, UAEU. A database-driven secure website allows multiple level access for program coordinators and residents. Features include resident rotations, evaluations, leave requests, and online examination. [<http://www.fmhs.uaeu.ac.ae/residency/>] (Shaban).



Neuroscience Research Group



Mission

The mission of the Group shall be to:

- Support and promote neuroscience in Al Ain and the UAE
- Give encouragement and assistance to, and strengthen ties between, its members
- Organize seminars, congresses and workshops in the field of neuroscience
- Collaborate with and participate in scientific activities of other groups in the field of neuroscience nationally and internationally.
- Develop educational programs at the UAE University that lead to higher degrees in Neuroscience

Major Achievements

In the year 2009 the members of the group have presented several abstracts in national and international meetings and a number of publications have resulted from their research activities. Several members of the group have received major research grants from local and international bodies including Michael J. Fox Foundation for Parkinson's Research, USA, Shaikh Hamdan Award for Medical Sciences, Emirates Foundation, and several FMHS & UAE University Research Grants.

Several members of the group hold membership in prestigious organizations and serve on the editorial board of international journals and committees. Also the group members collaborate with a number of research groups, institutions and organizations within the UAE & abroad.

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

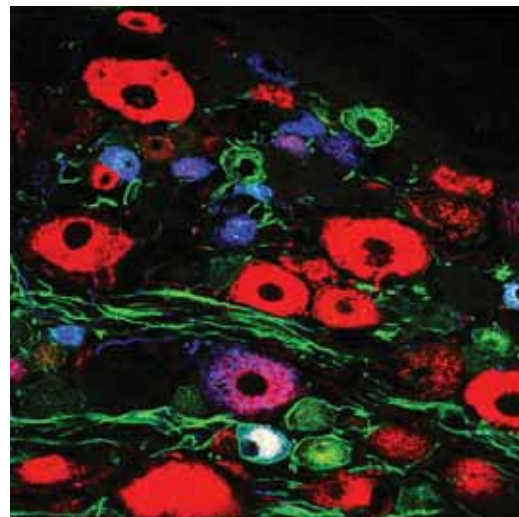
Tawam Hospital, Al Ain
Zayed University, Dubai

Abroad:

Boston College, MA, USA
Bogomeletz Institute, Ukraine
Conway Institute, Dublin, Ireland
Columbia University, NY, USA
Chapman University, USA
Chinese University of Hong Kong, China
Center of Molecular Neurobiology, University of Hamburg, Germany
Harvard Medical School, USA
Imperial College, London
Institut Pasteur de Lille, Cedex, France
Institutes for Medical Research and Neurology, Belgrade, Yugoslavia
Iowa Medical School, USA
James Cook University, Queensland, Australia
Janssen Research Foundation, Belgium
Lancaster University, UK
Kyoto Prefectural University of Medicine, Kyoto, Japan
Laboratory of Neurogenetics, National Institute on Aging, Maryland, USA
Mayo Clinic, Florida, USA
Manchester University, UK
McMaster University, Canada
National Institute of Health, USA
Royal Free & University College London Medical School, UK
SGHMS, University of London, UK
Sultan Qaboos University, Muscat, Oman
The Karolinska Institute, Sweden
The Queen's University of Belfast, UK
University of Manchester, UK
University of Aarhus, Denmark
Universita La Sapienza, Rome
University of Aalborg, Denmark
University of Amsterdam, Netherlands
University of Bonn, Germany
University of California and San Diego, USA
University of Gevle, Sweden
University of Glasgow
University of Groningen, Netherlands
University of Turin, Italy
University of Xi'an, China
Utrecht Medical Centre, Netherlands

**Summary of Grants & Publications 2009
(refer to departmental reports as below):**

Shehab S (Anatomy).
Adeghate E (Anatomy).
Mensah-Brown E (Anatomy).
Dietrich Lorke (Anatomy).
Conlon JM (Biochemistry).
El-Agnaf O (Biochemistry).
Galadari S (Biochemistry).
Nicholls MG (Internal Medicine).
Lukic M (Medical Microbiology).
Al-Gazali L (Paediatrics).
Gururaj A (Paediatrics).
Petroianu G (Pharmacology).
Adem A (Pharmacology).
Hasan MY (Pharmacology).
Bastaki S (Pharmacology).
Attoub S (Pharmacology).
Murat Oz (Pharmacology).
Fahim M (Physiology).
Lammers W (Physiology).
Ljubisavljevic M (Physiology).
El-Rufaie O (Psychiatry).
Raguram R (Psychiatry).
Osman O (Psychiatry).
Moselhy H (Psychiatry).
Salem M (Psychiatry).
Corr P (Radiology).
Gorkom van K (Radiology).



Confocal image of a section of the fifth lumbar dorsal root ganglion showing small isolectin B4 (IB4) labelled neurons (green, involved in pain sensation) and large cholera toxin subunit B (CTb) labelled neurons (red, involved in touch sensation transmission) from a rat which had an injection of a mixture of IB4 and CTb into the sciatic nerve. The image also demonstrates whether these different neurons contain CGRP (blue).

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.

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.

Group Leader:

Prof Thomas E Adrian

Core Members:

*Faculty of Medicine and
Health Sciences:*

Prof Frank Branicki [Vice Chair]

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 Itratni

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

- To promote quality control in the management of patients with cancer.

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.

Cancer Research Day

A cancer research day is being planned for the autumn of 2010.

CANCER-RELATED GRANT AWARDS OF ORG MEMBERS IN 2009

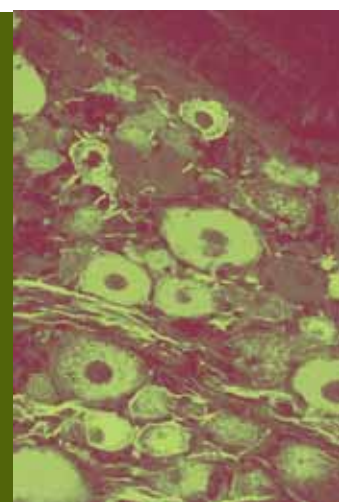
During 2008, members of the ORG received a total of 19 research grants for their work, including nine awards from the Terry Fox Fund for Cancer Research, three UAE University Interdisciplinary Awards, one from the Emirates Foundation and one from the US National Cancer Institute. In addition, the projects of six of the ORG members were included in the recently-funded, National Research Foundation,

Genes and Diseases Research Center of Excellence Award.

CANCER-RELATED PUBLICATIONS AND PRESENTATIONS OF ORG MEMBERS IN 2009

This year members of the ORG published 17 papers in peer-reviewed journals, four book chapters and made twenty one presentations at International meetings during the year.

Trauma Research Group



Summary

During 2009 the Trauma Group has made major contributions in trauma research and education both nationally and overseas. The Trauma Group has published 10 papers related to trauma in international refereed journals, and presented more than forty nine abstracts with oral presentations at national and international meetings. The Group has won three international prizes in Trauma Research. The "hands on training" in Point of Care Ultrasound continued to flourish with introduction of a new course on Critical Care Ultrasound. The group has run ten courses in 2009, two of these in Cairo, one in Muscat and one in Bahrain.

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 2009 include:

A) Publications and abstracts

In 2009, the group has published 10 papers related to trauma in international refereed journals. These papers stemmed from collaborative work with clinicians at Tawam and Al-Ain Hospitals with networking between the University and these two institutions. The group has presented more than forty nine abstracts and oral presentations at national and international meetings in 2009. Details of these publications and presentations are also to be found in the relevant Departmental Reports (Department of Surgery, and Department of Community Medicine).

B) International Conference on Trauma Management, Critical Care and Prevention 17-19 February 2009, Al-Ain City, United Arab Emirates www.traumaconf.uaeu.ac.ae

The above conference took place at The Intercontinental Hotel and Resort at Al-Ain on 17-19 February 2009. The Conference, for which planning began at February 2007, was an initiative of the

Core Members:

Faculty of Medicine and Health Sciences:

Prof Fikri Abu-Zidan
Prof Frank Branicki
Prof Peter Corr
Prof Elsadig Kazzam
Dr Fawaz Torab
Dr Michael Grivna
Dr Mohamed Sadig
Dr Sami Shaban
Dr Ali Jawas
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
Dr Ashraf Hefny

Trauma Group at the Faculty of Medicine and Health Sciences (FMHS), United Arab Emirates University.

Five organizations collaborated and were involved in the preparation of this conference: Trauma Group, Faculty of Medicine and Health Sciences, UAE University; Critical Care Department, Tawam Hospital in affiliation with Johns Hopkins International; Al-Ain Hospital managed by University of Vienna/Va Med; the Health Authority Abu Dhabi (HAAD); and Sheikh Hamdan Awards for Medical Sciences.

Scientific program: The final multidisciplinary scientific program was of very high standard. It was built on controversial themes that have generated considerable debate. Parallel sessions covered four main areas: Disaster Medicine, Trauma Management, Critical Care and Injury Prevention.

Four Workshops were held on the 16th February. These included hands on training in four areas: Focused Assessment Sonography of Trauma, Critical Care Ultrasound, Percutaneous Tracheostomy and Establishing a Trauma Registry. One hundred and twelve doctors underwent practical training in these important areas. The level of organization and local expertise in these fields was much appreciated by the participants and invited international trainers.

The main conference was three full days (17.5 CME hours accredited by FMHS, UAE University). Sixteen well-known international experts from

Australia, Canada and the USA, Europe, South Africa, and the GCC countries and 46 local speakers from UAE actively participated in the conference.

This International Conference provided a forum for the exchange of ideas and knowledge concerning trauma management. The meeting focused on recent advances and controversies through interaction with renowned international speakers. The conference was of a multidisciplinary nature as Surgeons, Emergency Physicians, Critical Care Physicians, Radiologists, Epidemiologists, prehospital staff, hospital based medical and nursing staff in the United Arab Emirates as well as those from other GCC participated (Fig 1). The program was structured in the form of plenary and parallel lectures and symposia, as well as oral and poster presentations. It provided an opportunity for continuous education in Traumatology and to receive "State of the Art" reviews. Issues addressed have included evidence based diagnosis and management of trauma patients, damage control surgery and angioembolization, abdominal compartment syndrome, and new trends in trauma research including management of coagulopathy and sepsis. Specific important topic sessions such as prehospital care, trauma education and training, trauma registries and systems, disaster management, injury prevention, biomechanics and road safety were also featured as well as trauma management of specific organs. The details of the scientific program are available on the website: <http://www.traumaconf.uaeu.ac.ae>

Four hundred delegates were involved. Furthermore, we had the pleasure of hosting the Norwegian physician "Professor Mats Gilbert" at the opening ceremony to give a talk on his recent experience in the Gaza Conflict. He was given a standing ovation for his memorable presentation. Furthermore, we were proud of our surgical residents who made very high standard scientific presentations. Our Trauma Group presented 18 of the 29 free oral and poster presentations in the conference. The strong academic and interesting social program was well received. The conference was also successful in financial terms. In summary this event has proven to be both exciting and rewarding.



Fig (1): The conference was of multidisciplinary nature as Surgeons, Emergency Physicians, Critical Care Physicians, Radiologists, Epidemiologists as well as Nursing Staff have participated in the conference.

C) Participation in Scientific Courses

The Trauma Group was actively involved in the organization and conduct of numerous courses.

1) ATLS Provider Courses: It was deemed essential to train UAE doctors using ATLS principles to improve the management of trauma patients. This course has been conducted at the Faculty of Medicine and Health Sciences several times every year since 2004 with Course Directorship of Professor Frank Branicki. A greater awareness of the value of ATLS enhancement of the early management of severe trauma is more evident in practice throughout the UAE.

2) Point of Care Ultrasound Course. We have increased the annual number of Point of Care Ultrasound courses from four to ten. Four of these courses were conducted overseas: two in Cairo, one in Muscat and one in Bahrain (Fig 2). The demand from participants, in the UAE and elsewhere, is increasing. Sonosite has loaned four advanced Sonosite hand-held ultrasound machines to help us run our courses.

3) ATOM Provider Courses: Both Professor Fikri Abu-Zidan and Dr Fawaz Torab were selected as instructors for the Advanced Trauma Operative Management (ATOM Course) which will be conducted regularly by Dubai Health Authority.

D) Successful Grants

Educational Grant to support Point of Care Ultrasound courses, Sonosite, Middle East.

Details of the grant are to be found in the profile of the Department of Surgery.

E) Clinical Service Role:

Professor Abu-Zidan continues to serve on the Trauma committee of Tawam Hospital. The members of the Trauma Group are actively participating in the Trauma CME program of Tawam Hospital. Furthermore, Dr Hani Eid, a member of The Trauma Group has established a hospital-based trauma registry in Tawam Hospital. The Trauma Group has also helped Al-Rahba Hospital (Abu Dhabi) to start its own Registry. Our ultimate goal is the establishment of a nationwide registry.

Awards:

1. Professor Fikri Abu-Zidan received the Singapore Medical Journal Recognition Award for "Reviewing with Distinction".
2. Dr Sami Shaban received the "Best Oral Presentation Award" in the Injury Prevention Section of the International Conference: Trauma Management, Critical Care and Prevention, 16-19 February 2009 Al Ain, UAE.
3. Dr Mariam Al Marashda received the "Best Oral Presentation Award" in the Trauma Section of the International Conference: Trauma Management, Critical Care and Prevention, 16-19 February 2009 Al Ain, UAE.



Fig2: The Trauma Group has run four Point of Care Ultrasound courses overseas. Dr Noureldin from Tawam Hospital teaching diagnosis of DVT at Muscat, Oman (left). Dr Ashraf Hefny from Al-Ain Hospital teaching FAST at Cairo, Egypt (right).

4. Professor Fikri Abu-Zidan received the "Best Poster Award" of the International Conference: Trauma Management, Critical Care and Prevention, 16-19 February 2009 Al Ain, UAE.

Media Reports on Trauma Group activities

The Trauma Group research activities on occupational injuries and road traffic collisions attracted considerable Media attention last year with major coverage on the need for prevention of occupational injuries and the legislation regarding the need for rear seat belts in the UAE. This included:

1. Mitya Underwood October 13. 2009
The National. Doctors call for better trauma care. <http://www.thenational.ae/apps/pbcs.dll/article?AID=/20091013/NATIONAL/710129840/1020>
2. Matthew Chung September 02. 2009
The National. New push to require rear seat belts. <http://www.thenational.ae/apps/pbcs.dll/article?AID=/20090902/NATIONAL/709019855>
3. Matthew Chung, September 02. 2009.
Buckle up to curb back seat deaths <http://www.thenational.ae/apps/pbcs.dll/article?AID=/20090902/NATIONAL/709019843>
4. Editorial September 01. 2009. The National.
The traumatic statistics on seatbelt use. <http://www.thenational.ae/apps/pbcs.dll/article?AID=/20090902/OPINION/709019928>
5. Matt Kwong and Suryatapa Bhattacharya.
Research highlights danger to labourer
October 02. 2009 The National
<http://www.thenational.ae/apps/pbcs.dll/article?AID=/20091002/NATIONAL/710019822/1040/globalbriefing>



The Trauma Group research activities on occupational injuries has attracted considerable Media attention with major coverage on the need for prevention of injuries.

Medical Student Research







Medical Student Research

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. 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. Students are required to carry out a research project as part of the Community Medicine rotation in Clinical Sciences year 2.

Opportunities for extracurricular research include laboratory attachments, summer research projects and the UK Research Scholarship program. Students are encouraged to join research laboratories and to shadow research activities. It is hoped that some of these attachments will lead to long term collaborations. The summer holidays are a good time for student research and typically more than 50 students are involved in research projects in different laboratories during the summer. 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 2009 three students visited UK – Mey Khalfan Ahmed Al Kitbi visited the laboratory of Professor Jai Singh at the University of central Lancashire, Omar Ahmad Mohd Ahmad visited the laboratory of Professor Malcolm Alison at the Institute of Cell & Molecular Science, Barts & London Queen Mary's School of Medicine (Cancer Research UK) and Abdulla Abdulrahman Mudhafar visited the laboratory of Doctor John Stingl at the Cambridge Research Institute (Cancer Research UK).

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

UK Research Scholarship Program
Summer 2009



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'.

Awards were given for Best Oral and Poster Presentations (three awards each) and Best Abstract (one award).

Oral Awards

First prize – The role of MyD88 protein and TLR signaling pathway in protection against bacterial infections. Al-Ketbi MI, Dhanya S, Fernandez-Cabezudo MJ, al-Ramadi BK. FMHS, UAE University.

Second prize – The effect of gum Arabic on adenine induced chronic renal failure in rats. Al Harthi T, Kayed R, Al Masroori N, Badraddin A. Sultan Qaboos University, Oman.

Third prize – Folic acid awareness among female college students. Ageely GA, Kari JA, Bardisi ES, Baitalmal RM. Kingdom of Saudi Arabia. King Abdulaziz University, Saudi Arabia.



'The 7th Scientific Conference for Medical Students in the GCC Countries'
King Abdulaziz University, Jeddah, Saudi Arabia – February 13-16, 2010



Poster Awards

First prize – Oxygen measurements via phosphorescence: biological applications. Marzouqi FM, Al Mansouri A, Shaban S, Harvey S, Souid A-K. FMHS, UAE University.

Second prize – The prevalence of generalized anxiety disorder among Medical Students in King Abdulaziz University. Sawan M, Abu-Shanab J, Shafiq Y, Habis Y, Ghabra H. King Abdulaziz University, Saudi Arabia.

Third prize – Effect of camel milk on the metabolic parameters of type 1 diabetes mellitus. Al Ameri MMSS, Al Ahabbi S, Al Dhaheri A, Al Zaabi A, Al Mansouri L, Hameed R, Laleye L, Abbas T, Adeghate E. FMHS, UAE University.

Abstract Award

Tobacco use among male Medical Students of King Saud University, Riyadh, Saudi Arabia (2009). Al-Atawi M, Al-Aqeel M, Al-Bedaiwi I, Al-Faify O, Al-Shehri B, Al-Shehri R, Al-Shemrani A, Al-Yahia F, Al-Zaid A. King Saud University, Saudi Arabia.

The 8th Scientific Conference for Medical Students in the GCC Countries will be held at Kuwait University in February, 2011.

Prof. Chris Howarth & Dr Mariam Al-Shamsi



The National Medical Library and Learning Resource Center



The National Medical Library

The National Medical Library (NML) puts "Customer Service" first.

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Secretary
Ms. Hessa Ahmed

The NML has experienced great changes during 2009. Not only did it take on a new Director midyear, it also took over the running of the Learning Resource Centre, formerly the responsibility of the FMHS Medical Education Department.

Under the leadership of its new Director, the NML has committed itself to providing superior customer service. It has also enhanced the marketing of its resources and services through regular offerings of training workshops and electronic FYI's to FMHS faculty, staff, and students. In addition, the NML's web site has been reorganized in order to provide intuitive "one-stop-shopping" to the NML's many electronic resources, tutorials, topical resource guides, and online catalogue.

Superior customer service is also a hallmark of the NML's Document Delivery program, with copies of articles available in digital format often delivered within minutes of being requested. The creation of a specially designed relational database enables better tracking and statistical reporting of document delivery and interlibrary loan requests. Besides serving as a collection development tool that helps the NML determine which currently non-subscribed journals should be considered for purchase, the database provides a "customer service" benefit to FMHS researchers by its ability to produce a listing of the citations to all articles each has requested since the database's inception.

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.

Visitors can take advantage of the NML's public-access computers to access its comprehensive collection of e-resources and the Internet, while students, staff, and faculty have the additional

option of connecting wirelessly to those same resources from any point in the NML. Access to the NML's licensed electronic resources is also available to FMHS users from off-campus.

In response to the need to make more of its holdings available to more users at one time, an increased emphasis has been placed on purchasing electronic books. Currently, the NML's print holdings of Health Sciences titles are supplemented by over 4200 ebooks, most of which offer user-friendly features such as highlighting, annotation capabilities, and direct

export to bibliographic management software. Anatomical models, charts, and an ever-expanding multimedia collection round out the NML and LRC's holdings.

Future plans for the NML include updating its facilities to accommodate the study needs of the growing number of students enrolled in the FMHS's expanding postgraduate degree programs.

2009

National Medical Library



Standing left to right: Mr Khalid Pasha, Mr Osama Kayal, Mr Abdurahiman, Mr Khurshid Iqbal, Mr Abdul Salim, Mr Koya Kariyankandy

Seated left to right: Mrs Eben Prasad, Mr A V Thomas, Ms Marybeth Gaudette, Mrs Widad Al Jaili (LRC), Mrs Muna Abdul Hameed, Mr. Ahmed Fathy (LRC).

<http://www.fmhs.uaeu.ac.ae/nml/> Tel.: +971 3 713 7201 Fax: +971 3 767 8755

Impact Factor

Impact Factor

Journal	Impact Factor
Nat Genet	30.259
Nat Immunol	25.113
Lancet Neurol	14.270
Brit Med J	12.827
PLOS Med	12.185
Am J Hum Genet	11.306
Brain	9.603
Hum Mol Genet	7.249
Thorax	7.069
Faseb J	7.049
Arth Rheum	6.787
Emerg Infect Dis	6.449
Prog Biophys Mol Bio	6.388
Allergy	6.204
J Immunol	6.000
J Biol Chem	5.520
AIDS	5.460
J Clin Psychiat	5.053
Biochem Pharmacol	4.838
Biophys J	4.683
Toxicol Sci	4.443
Biochem J	4.371
Biochemica Biophysica Acta	4.180
Fertil & Steril	4.167
Retrovirology	4.042
J Comp Neurol	3.915
Am J Prev Med	3.766
J Nutrition	3.647
Clin Immunol	3.606
Am J Physiol	3.587
Nutri, Metabo Cardiovas	3.565
Mol Immunol	3.555
Ann Fam Med	3.541
Virology	3.539
Biochemistry	3.379

Journal	Impact Factor
Pharmacol Res	3.287
Surg Endosc	3.231
Diabetic Medicine	3.172
Int J Cardiol	3.121
J Exp Biol	2.981
Clin J Pain	2.889
J Am Diet Assoc	2.868
Toxicology	2.836
Neurotox Res	2.828
Muscle Nerve	2.735
Brit J Urology Intl	2.704
Gen Comp Endocr	2.654
Biochem Biophys Res. Co	2.648
J Pharmaceut Biomed	2.629
Ann Biomed Eng	2.605
Psych Res	2.6
Social Sci & Med	2.6
Peptides	2.565
Am J Med Genet A	2.555
Comp Biochem Physi C	2.530
Autoimmunity	2.525
J Neural Transm	2.514
Brain Research	2.494
Toxicon	2.460
Inhal Toxicol	2.403
Chem Biol Drug Desi	2.375
Brit J Radiol	2.366
Clin Exp Rheumatol	2.364
Epidemiol Infect	2.360
Int J Tuberc Lung Dis	2.304
Ann NY Acad Sci	2.303
J Am Soc Echocardio	2.256
Neurosci Lett	2.200
Ann Hum Genet	2.195
Exp Brain Res	2.195

Journal	Impact Factor
J Med Microbiol	2.190
Med Educ	2.181
J Pediatr Gastr Nutri	2.132
Int Arch Allergy Imm	2.131
Auton Neurosci Basic	2.130
Int J Geriatr Psych	2.128
J Appl Toxicol	2.127
World J Gastroenterolo	2.081
J Diabetes Complicat	2.008
Rev Diabet Studies	1.985
Injury	1.946
Leukemia Lymphoma	1.939
J Endourol	1.930
J Sci Med Sport	1.913
J Surg Research	1.875
Clin Exp Dermatol	1.779
Mol Cell Biochem	1.764
Econ Hum Biol	1.725
Eur Child & Adolesc Psychiatry	1.7
J Arthroplasty	1.556
Curr Eye Research	1.519
Acta Paediatr	1.517
Appl Immunohisto M M	1.487
Med Hypotheses	1.416
Int J Dermatol	1.409
Neuroendocrinol Lett	1.359
Occupational Med (Oxford)	1.324
Am J Perinat	1.158
J Matern Fetal Neo M	1.089
Pediatr Cardiol	1.030
Pathol Res Pract	1.029
Int J Food Properties	1.020
Matern Child Nutr	0.922
Int Urol & Nephrol	0.912
Int J Neurosci	0.884

Journal	Impact Factor
Pharmazie	0.884
Eur Arch Oto-Rhino-L	0.858
Scan J Surg	0.843
Asian J Surg	0.775
Orthopade	0.675
Toxicol Mech Method	0.573
Saudi Med J	0.426
Arab J Psychiatry	0.396
Biomed Research	-
BMC Blood Disord	-
BMC Endocrine Disord	-
BMC Pallative	-
BMJ Case Reports	-
BMJ Monograph	-
Bull World Health Organ	-
Cardvasc Diabetol	-
Child & Adolescent Psych & Mental Health	-
Clin Cosmetic & Invest Dermatol	-
Eastern Medit Health J	-
Education for Health	-
Emirates Med J	-
Hematol Oncol Stem Cell Ther	-
Int J Criminal Justice Sci	-
Int J Dream Research	-
Int J Social Psych	-
Iraq Mental Health J	-
Islets/Landes Biosci	-
J Acquir Immun Defic Syndr	-
J Addictive Disorder & Treatment	-
J Dual Diagnosis	-
J Emergency Med, Trauma & Acute Care	-

Journal	Impact Factor	
J Med Sci	-	
J Medical Sci	-	
J Obstet Gynaecol	-	
J Occ Med & Tox	-	
J Ophthalmology	-	
J Pancreas	-	
J Parenteral & Entral Nutri	-	
J Rural & Tropical Pub Health	-	
Lebanese Med J	-	
Medicinal Chemistry	-	
Metabolic Syndr & Related Disorders	-	
Methods Mol Biol	-	
Nutrition in Clin Practice	-	
NZ Med J	-	
Open Medicinal Chem J	-	
Pediatr me	-	
Physiol J	-	
PPAR Research	-	
Radiol Oncol	-	
Respiration		
Scoliosis	-	
Turk J Trauma & Emerg Surgery	-	
World J Emerg Surg	-	

إن مطبوعات أبحاث كلية الطب والعلوم الصحية لسنة 2009 تسلط الضوء على باحثينا العلميين واتساع نطاق البحث لدينا، ويعزز بالتالي من السمعة العلمية لكلية الطب والعلوم الصحية وجامعة الإمارات العربية المتحدة والدولة.

مبروك.

الدكتور/ سهام الدين قلداري
مساعد العميد للبحوث والدراسات العليا

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.

إن رعاية المنح لا يزال سلعة مطلوبة جداً، وتضم قائمة المتبرعين الثابتين ما يلي :

- جوائز الشيخ حمدان للعلوم الطبية
- صندوق تيري فوكس للسرطان في دبي وأبو ظبي وكندا
- ويلكوم ترست بالمملكة المتحدة - تطوير علم الوراثة الفيروسي واللقاحات
- مؤسسة مايكل جيه فوكس بالولايات المتحدة الأمريكية -- مرض باركنسون
- المجلس الثقافي البريطاني في دولة الإمارات
- أليسكو -- العلوم العصبية
- هارفارد الدولية -- لمكافحة السرطان
- هارفارد الدولية -- علم الوراثة
- مؤسسة بحوث الأطفال (صندوق أبحاث تراشر)، الولايات المتحدة -- نقص الفيتامينات
- ساتيجن -- مرض السكري
- سونيسايت -- الإصابات
- الهلال الأحمر -- الإصابات
- هيئة أبو ظبي للبيئة مع جامعة ولاية كارولينا الشمالية -- الصحة البيئية
- جامعة كاليفورنيا -- علم الوراثة
- هيئة الصحة بأبو ظبي -- الصحة المهنية
- هيئة أبو ظبي للأغذية -- التمر و داء السكري
- المركز الدولي للهندسة الوراثية والتقنية الحيوية -- علم الوراثة والسرطان

إننا مدينون لهم بشدة على دعمهم المستمر لأبحاثنا، ففي هذه الأزمة المالية العالمية الصعبة التي وضعت قيوداً على نمونا وتطورنا، فإنني مبهور بالنتائج ذات الجودة العالية من باحثينا المخلصين، لذلك فإنني أهنئهم وأشكرهم.

الأستاذ الدكتور / محمد يوسف حسن بني ياس
وكيل نائب مدير الجامعة للعلوم الطبية و عميد كلية الطب والعلوم الصحية

كلمة العميد

إنه لمن دواعي سروري أن أرحب بكم في المطبوعات البحثية الخاصة بكلية الطب والعلوم الصحية لعام 2009.

لقد قدم الباحثون في كلية الطب والعلوم الصحية مساهمات هامة في الأدب المجتمعي والسريري والطب الحيوي خلال عام 2009، وأنا أهنئ جميع أعضاء هيئة التدريس الذين ساهموا في هذا المستوى المتميز جداً من الإنتاجية البحثية، وحيث أنه من المعتاد أن نعترف بالجهود الممتازة للباحث الرئيسي في كل بحث منشور، فإنني أود الاعتراف أيضاً بجهود فريق الدعم، فلقد تعاون الباحثون، وطلاب الدراسات العليا، وطلاب الطب، والموظفون التقنيون، والسكرتارية، وموظفو الخدمات المساندة، والمتطوعون، والمرضى الذين كانوا موضوع الدراسات السريرية جميعاً لجعل البحث ممكناً، ونحن ممتنون لهم جميعاً لما قدموه من إسهامات في المنجزات البحثية بكلية الطب والعلوم الصحية.

إن طلابنا المخلصون ومرشدي الأبحاث، سواء من أعضاء هيئة التدريس أو الموظفين، ينبغي عليهم أن يفخروا باستمرارهم بإنجازهم الرائع خلال عام 2009، فقد أثمرت جهودهم حقاً خلال المؤتمر الأخير لدول مجلس التعاون الخليجي لطلاب الطب في جامعة الملك عبدالعزيز بجدة في المملكة العربية السعودية، حيث فاز طلابنا بجوائز مرموقة نظير تقديمهم للعروض الشفوية والملصقات.

إن مجموعات الأولوية البحثية بكلية الطب والعلوم الصحية ذات الصلة بمجتمع الإمارات تشجع على المؤتمرات البحثية الكبرى التي يحضرها باحثون دوليون، بالإضافة إلى مشاركين من المنطقة والدولة، ويشارك طلاب الدراسات العليا بجامعة الإمارات، والمقيمون، وزملاء البحوث، والزملاء السريريون من المستشفيات المحلية إلى حد كبير في العروض الشفوية والملصقات التي تعد متوافقة مع المعايير الدولية، إن مجموعات الأولوية البحثية بكلية الطب والعلوم الصحية (أمراض الوراثة والنمو، والإصابات والحوادث المرورية على الطرق، بيولوجيا السرطان وعلاج الأورام الخبيثة، والصحة العصبية والنفسية، والأمراض المعدية وضبط المناعة، والسكري وأمراض القلب والأوعية الدموية، والصحة البيئية والمجتمع) لا تزال في طليعة الجهات التي تهتم بمعالجة الأمور الصحية التي تشغل بال هذه الأمة.

وبتكليف من معالي الرئيس الأعلى للجامعة الشيخ نهيان بن مبارك آل نهيان، تركز جامعة الإمارات جهودها المتزايدة على البحوث ذات الجودة العالية، ونحن هنا في كلية الطب والعلوم الصحية نعتبر أنفسنا محظوظين لما نلقاه من تشجيع من قبل الإدارة العليا ونظل ملتزمون بمواصلة التحدي لتطوير قدراتنا البحثية ومخرجاتنا.

تمهيد

هذا هو التقرير السنوي التاسع عشر عن نشر البحوث وملامح بحوث كلية الطب والعلوم الصحية بجامعة الإمارات العربية المتحدة، ويعتبر هذا العدد استمراراً لسلسلة من التقارير السنوية التي يعود تاريخها إلى تقريرنا الأول في عام 1991.

وكما جرت العادة كل عام فإننا نحاول تطوير هذا الدليل والحفاظ على جودته، وهذا العام ليس استثناءً من ذلك، فقد واصلنا إدراج ملامح عن الإدارات والتقارير الواردة من المجموعات ذات الأولوية للبحوث، بما في ذلك تقرير عن البحوث الطبية الطلابية.

لقد حافظنا أيضاً على تصميم كتيب العام الماضي، وكما نتذكرون فإن إيفانا ليزاريتوري - من قسم الإعلام - قد وضعت العام الماضي تصميماً جديداً لكتيبنا هذا، وحيث أن ذلك على ما يبدو قد لقي استحساناً عام (بل حتى بعض المديح!) فقد واصلت السيدة ليزاريتوري في هذه الطبعة تصميمها الذي يتميز بنمط موحد واستخدام ثابت للعناصر المرئية، فصار أسهل الآن مع التصميم الجديد تحديد الفصول والأجزاء وفئات النص.

وكما هو الحال دائماً، فإنه لمن دواعي سروري أن أشكر فريق الإنتاج، والذين قاموا بجمع هذا التقرير معاً، وكانت السيدة إيفانا ليزاريتوري هي مصممة الجرافيك للكتيب من الجلفة إلى الجلفة، وقامت السيدة شيخة بطي بتحويل جميع المساهمات إلى أسلوبنا الخاص بنا وذلك باستخدام أحدث برامج إن-ديزاين، كما تولى السيد راجاجوبالان - كعادته دائماً - مهمة تحرير المساهمات الأولية للإدارات والاتصال بين جميع الأطراف، وقدم السيد آشوك العديد من الصور الفوتوغرافية.

د. ويم لامرز،
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الآنسة شيخة المزروعي

التصوير:
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DNA strands : @iStockphoto.com/Mark Evans

جامعة الإمارات العربية المتحدة
United Arab Emirates University

UAEU

المنشورات السنوية لمكتب العميد المشارك
لشؤون البحث العلمي و الدراسات العليا

طبع بواسطة وحدة المطبوعات
جامعة الامارات العربية المتحدة

2009
المنشورات العلمية
و الاهتمامات البحثية
مكتب العميد المشارك لشؤون البحث العلمي
و الدراسات العليا

