

2013

Research Publications & Research Profiles

Office of the Assistant Dean for Research
and Graduate Studies



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Dean's Message

I am delighted to present the Research Publications and Research Profiles report for the College of Medicine and Health Sciences (CMHS) 2013. This continues our commitment to documenting our research activities and output annually. This report is available as a hard copy and as an electronic version on the United Arab Emirates University (UAEU) website.

CMHS has done well in regards to attracting research funding, initiating research projects, and collaborating with local, national and international partners for basic science, clinical, and community research. As one of nine colleges within the UAEU, we contribute to around a third of the total research output of the University. We have strengthened our research capabilities through improvements in our laboratory facilities, expanding our research degree programs for postgraduates, and supporting staff and student presentations of their research work at international meetings. The University has designated CMHS as one of the first colleges to have a dedicated research center for community and global health research. This is the new Zayed bin Sultan Center for Health Sciences, headed by Dr. Fatma Al-Maskari.

My congratulations to our academic and support staff for their achievements in medical research. Staff members have been recognized individually in regards to research excellence, and collectively in terms of research grants received. The College has succeeded in obtaining grants from a wide variety of sources including the Terry Fox Foundation; the Hamdan awards; and the National Research Foundation. A major thrust of the research efforts of our staff is a better understanding of disease and the development of advances in dealing with health problems relevant to the UAE population.

Professor Wim Lammers has worked hard on editing each edition of CMHS Research Publications and Research Profiles since its inception in 1991. Wim has shown dedication, enthusiasm and sheer hard work in this role, and my thanks go to him as he hands over the editorial function to his successor. I am also grateful to members of the production team and the academic community for delivering another excellent record of our research efforts. We look forward to continuing success in research at CMHS.

Professor Tar-Ching Aw
Interim Dean, College of Medicine & Health Sciences

Foreword from the Assistant Dean for Research & Graduate Studies

Throughout the years, we at the CMHS have not only maintained but also brought the level of its research productivity through numerous peer-reviewed publications, presentations at international conferences and other scholarly activities to higher levels.

This contribution from the CMHS has led to position the UAEU as the top biomedical research-intensive institution in the UAE and the region.

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

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

The College of Medicine and Health Sciences Research Publications 2013 highlights our scientific investigations and the breadth of our research and thereby enhances the scientific reputation of the College of Medicine & Health Sciences, the United Arab Emirates University and the Nation.

With this anniversary edition, I would also like to take this opportunity to thank all those who have contributed in many ways to our research achievements at the CMHS and to this publication and in particular Prof. Wim Lammers who have started and carried on for so many years this ambitious project. It is also my privilege to thank Prof. Keith Bagnall for kindly accepting to take over and continue with it.

Dr. Mariam Al Shamsi
Assistant Dean for Research & Graduate Studies

Editor's Preface

This is the 23rd annual 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.

This is the 23rd annual report on Research Publications and Research Profiles for the College 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 several Research Priority Groups, including a report on Student Medical Research. At the end of the booklet we have also listed the journals in which we have published in 2013 and their impact factor.

We have also kept the design, which we have used for the past 6-7 years. As you may remember, Ivanna Lizarriturri from the Media department had developed a new design for our booklet. As this seemed to have been met with general approval, Ms Lizarriturri has in this edition continued with this design which provides for a uniform style and a consistent use of visual elements. With the new layout it is now easier to identify chapters, sections and text categories.

As always, it is a pleasure to thank the production team, who have put all this together. Ms Ivanna Lizarriturri was the Graphic Designer, literally from front to back cover, ably assisted by Ms Adriana Khazki. Mr Rajagopalan, as always, took care of editing the initial departmental contributions and the communication between all parties and Mr Ashok Prasad provided numerous photographs. The translation, as in previous years, was ably performed by Ms Al-Anood Al-Jaberi.

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

Dr W Lammers, *Editor*

Dr K Bagnall, *Co-editor*

Research Publications by Department

Anatomy

Biochemistry

Family Medicine

Institute of Public Health

Internal Medicine

Medical Education

Medical Microbiology & Immunology

Obstetrics & Gynaecology

Pediatrics

Pathology

Pharmacology and Therapeutics

Physiology

Psychiatry and Behavioural Sciences

Radiology

Surgery

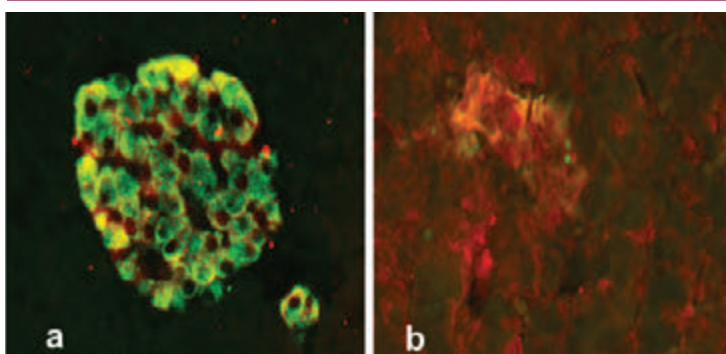
Department of Anatomy



Research Profile

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

Prof Ernest Adeghate's major research interest is on the effect of pancreas transplantation on the metabolic parameters of animal models of diabetes. He also examines the role of neuropeptides on insulin and glucagon secretion from the pancreas, especially in diabetic condition and how these could be used in the management of diabetes mellitus. He is also interested in the morphological basis of diabetes complications.



The figure shows immunofluorescence micrographs of nociceptin (red) and insulin (green) in the islets of non-diabetic (a) and diabetic (b) rats. Yellow colour indicates cells that contain both nociceptin and insulin. There is a large reduction in the number of nociceptin- and insulin-positive cells in diabetic rats. X400

Prof Eric PK Mensah-Brown: This year I have together with my collaborators been working on the cellular bioenergetics of the central nervous system using experimental autoimmune encephalomyelitis as a model. We have also shown for the first time, that in EAE, a rodent model for relapsing/remitting multiple sclerosis, the most important pathological finding is the production of

Professor, Chairman

Prof E Adeghate

Professors

Prof K Bagnall

Prof SM Karam

Prof E Mensah-Brown

Prof S Shehab

Assistant Professors

Dr A Bahi

Dr BS Emerald

Medical Research Specialists

Ms C D'Souza

Mr RS Hameed

Ms A Rifaat

Mr S Tariq

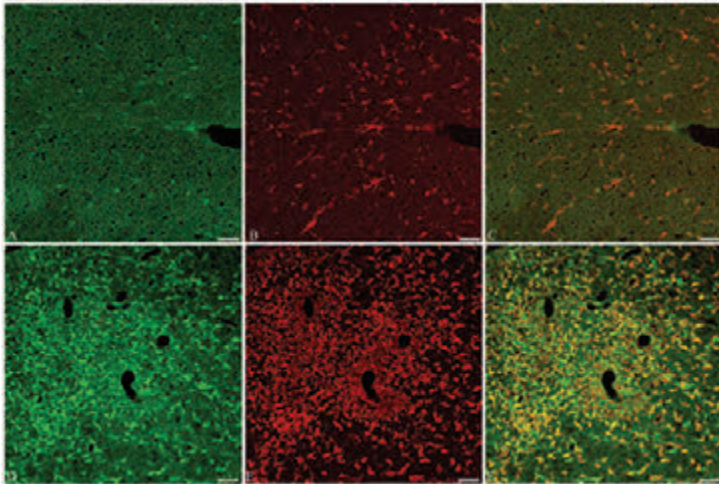
Mr W Wanniarachi

Secretary

Ms S Al Shamsi

Office Assistant

Mr TV Basheer



Immunofluorescent confocal images of the spinal cord of AO (ABC) and DA (DEF) rats stained with rabbit anti-caspase 1 (A,D) and goat anti-Iba-1 (B,E) antibodies. Note that the anti-Iba-1 microglial cells in DA spinal cords are activated (E) whereas those in AO (B) rats are still ramified. Note also the almost complete co-localization of caspase-1 and Iba-1 immunopositive cells in DA spinal cords.

caspase-1 by both mononuclear cells and microglia (see figure). We have also been investigating the role of epigenetics in type 2 diabetes.

Prof 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.

Dr. Amine Bahi's primary research is to gain better understanding of the molecular mechanisms involved in psychiatric illnesses. He is mainly interested in addiction, depression, anxiety and chronic psychosocial stress. He is currently investigating how genetic manipulations using viral vectors in the central nervous system are likely to be critical in behavioural consequences of these psychiatric illnesses.

Prof Safa Shehab studies the reorganisation of the neuronal circuitry in the dorsal horn of the spinal cord after peripheral nerve injury. He is investigating the types of primary afferent fibres that are critical for the development of neuro-

pathic pain and identifying the ascending spinal projection pathways which are responsible for transmitting visceral pain to the brain.

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

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

Dr. Starling Emerald's long term interest is to understand how shuttle changes in expression of genes mediated by epigenetic regulatory interactions leads to metabolic diseases such as type 2 diabetes mellitus, obesity, cardiovascular disease and hypertension. According to the International Diabetes Federation's report the number of people (20-70yrs) with diabetes in UAE is ~ 425,000, a staggering 18.7% of the population. Unfortunately it is on the rise and it is projected to reach 21.7% by the year 2030. Although an adverse early-life environment has been linked to an increased risk for the development of metabolic diseases such as type 2 diabetes mellitus, obesity and hypertension, the molecular mechanisms underlying these altered disease susceptibility is largely unknown. To understand the possible molecular mechanisms as well as to elucidate its relevance to human health we have carrying out gene expression profiling, methylation profiling as well microRNA profiling studies. From these studies we have identified a number of novel targets (genes, microRNAs and promoter sequences) including some key regulators. We believe that a detailed analysis of these targets may improve our understanding of how shuttle changes in epigenetic regulation/s predisposes towards metabolic syndrome which in turn may help in designing better intervention strategies which is required if we need to stop the increasing trend of metabolic diseases.

Articles in Peer-reviewed Journals

Aburawi EH, Qureshi MA, Oz D, Tariq S, Das S, Goswami A, Asefa T, Souid AK, Adeghate E, Howarth FC. (2013). Biocompatibility of Calcined Mesoporous Silica particles with entricular myocyte structure and Function. *Chemical Research in Toxicology*, 26: 26-36.

Adeghate E, Donáth T, Adem A. (2013). Alzheimer Disease and Diabetes Mellitus: Do they have anything in common? *Current Alzheimer Research*, 10:609-617.

Al Shamsi M, Shahin A, Iwakura Y, Lukic ML, Mensah-Brown EP. (2013). Pam3CSK(4) enhanced beta cell loss and diabetogenesis: the roles of IFN-gamma and IL-17. *Clinical Immunology*, 149:86-96.

Bahi A, Dreyer JL. (2013). Chronic psychosocial stress causes delayed extinction and exacerbates reinstatement of ethanol-induced conditioned place-preference in mice. *Psychopharmacology (Berl)*, 231:367-377.

Bahi A, Dreyer JL. (2013). Striatal modulation of BDNF expression using MicroRNA124a-expressing lentiviral vectors impairs ethanol-induced conditioned-place preference and voluntary alcohol consumption. *European Journal of Neurosciences*, 38:2328-2337.

Bahi A, Sadek B, Schwed S, Walter M, Stark H. (2013). Influence of the novel histamine H3 receptor antagonist ST1283 on voluntary alcohol consumption and ethanol-induced place preference in mice. *Psychopharmacology (Berl)*, 228:85-95.

Bahi A, Tolle V, Fehrentz JA, Brunel L, Martinez J, Catherine-Laure Tomasetto CL, Sherif M, Karam MS. (2013). Ghrelin knockout mice show decreased voluntary alcohol consumption and reduced ethanol-induced conditioned place preference. *Peptides*, 43:48-55.

Bahi A. (2013). Increased anxiety, voluntary alcohol consumption and ethanol-induced place prefer-

ence in mice following chronic psychosocial stress. *Stress*, 16:441-451.

Bahi A. (2013). Individual differences in elevated plus-maze exploration predicted higher ethanol consumption and preference in outbred mice. *Pharmacology, Biochemistry & Behavior*, 105:83-88.

Bahi A. (2013). Viral-mediated knockdown of mGluR7 in the nucleus accumbens mediates excessive alcohol drinking and increased ethanol-elicited conditioned place preference in rats. *Neuropsychopharmacology*, 38: 2109-2119.

Denic S, Emerald BS, Nicholls MG. (2013). Type 2 diabetes: The genetic conflict hypothesis. *Medical Hypothesis*, 80: 436-440.

Fahim MA, Shehab S, Nemmar A, Adem A, Dhanasekaran S, Hasan MY. (2013). Daily subacute parquat exposure decreases muscle function and substantia nigra dopamine level. *Physiology Research*, 18: 62:313-321.

Fahim MA, Tariq S, Adeghate E. (2013). Vitamin E modifies the ultrastructure of testis and epididymis in mice exposed to lead intoxication. *Annals of Anatomy*, 195:272-277.

Kalász H, Petroianu G, Hosztafi S, Darvas F, Csermely T, Adeghate E, Siddiq A, Tekes K. (2013) Medicinal chemistry of drugs with active metabolites following conjugation. *Mini Reviews in Medicinal Chemistry*, 13:1550-1563.

Li X, DeJoseph M, Urban J, Bahi A, Dreyer JL, Meredith G, Ford K, Ferrario C, Loweth J, Wolf W. (2013). Different roles of BDNF in nucleus accumbens core versus shell during the incubation of cue-induced cocaine craving and its long-term maintenance. *Journal of Neuroscience*, 33:1130-1142.

Nemmar A, Raza H, Yuvaraju P, Beegam S, John A, Yasin J, Hameed RS, Adeghate E, Ali BH. (2013). Nose-only water-pipe smoking effects on airway resistance, inflammation, and oxidative stress in mice. *Journal of Applied Physiology*, 115:1316-1323.

Nurulain SM, Petroianu G, Shafullah M, Kalász H, Oz M, Saeed T, Adem A, Adeghate E. (2013). Sub-chronic exposure to paraoxon neither induces nor exacerbates diabetes mellitus in Wistar rat. *Journal of Applied Toxicology*, 33:1036-1043.

Rahman MA, Karam SM. (2013) Gastric parietal cell vacuolation mimicking carcinoma. *Histopathology*, 63:735-737.

Sadek Shehab S, Więcek M, Subramanian D, Shafullah M, Kieć-Kononowicz K, Adem A. (2013). Anticonvulsant properties of histamine H3 receptor ligands belonging to N-substituted carbamates of imidazopropanol. *Bioorganic Medicinal Chemistry Letters*, 23: 4886-4891.

Tariq S, Nurulain SM, Tekes K, Adeghate E. (2013). Deciphering intracellular localization and physiological role of nociceptin and nocistatin. *Peptides*, 43: 174-183.

Tekes K, Tariq S, Adeghate E, Laufer R, Hashemi F, Siddiq A, Kalasz H. (2013). Nociceptinergic system as potential target in Parkinson's disease. *Mini-Reviews in Medical Chemistry*, 13:1389-1397.

Ting-A-Kee1 R, Vargas-Perez H, Bufalino MR, Bahi A, Dreyer JL, Tyndale RF, van der Kooy D. (2013). Infusion of brain-derived neurotrophic factor into the ventral tegmental area switches the substrates mediating ethanol motivation. *European Journal of Neuroscience*, 37:996-1003.



Books, Chapters, Reviews and Editorials

Karam SM. (2013). Gastric Stem Cell Biology: Proliferation Kinetics, Differentiation Hierarchies, and Role in Carcinogenesis. In: *Stem Cells handbook*. Ed Sell S, Humana Press Inc, New Jersey (2013) 2nd Edition Part III, 255-271.

Published Abstracts, Letters and Correspondence

Adeghate E, Lotfy M, Singh J. (2013). Mechanism of exenatide-induced hypoglycaemic effect in an animal model of type 1 diabetes. *Journal of Endocrinology, Metabolism and Diabetes of South Africa*, 18: 43.

Al-Shamsi M, Shahin A, Mensah-Brown EP, Souid AK. (2013). Derangements of liver tissue bioenergetics in concanavalin A-induced hepatitis. *BMC Gastroenterology*, 13:6.

Bastaki SA, Amir N, Hameed R, Tariq S, Adeghate E. (2013). Mechanism of diabetes-induced dyspepsia in an animal model of type 1 diabetes. *Journal of Gastroenterology and Hepatology* 28: 76.

Hughes DI, Boyle KA, Shehab S, Scott DT, Riddell JS, Callister R, Graham BA, Yasaka T. (2013) Parvalbumin-expressing cells provide presynaptic (axo-axonic) inputs on to myelinated afferents in the rat spinal dorsal horn. *Society for Neuroscience* 462:16.

Shehab S, Anwer M, Galani D, AbdulKarim A, Al-Nuaimi K, Al-Baloushi A, Ljubisavljevic M. (2013). A possible role of uninjured adjacent L4 nerve in the development of peripheral neuropathic pain after L5 spinal nerve ligation in rats. *Regional Anesthesia and Pain Medicine*, 38 (Supplement): E1-E259.

Proceedings, Conferences, Invited Lectures, Web Sites and Others

Adeghate E. (2013). Mechanism of exenatide-induced hypoglycaemic effect in an animal model of type 1 diabetes. 48th Congress of the Society for Endocrinology, Metabolism and Diabetes of South Africa, April 19-20, 2013.

Al Menhali AA, Al Shamisi SB, Branicki F, Karam SM. (2013). Expression of Parathyroid Hormone-Like Hormone Receptor in Precancerous and Cancerous Human Gastric Tissues. The FASEB, Gastrointestinal Tract XV, Colorado, USA.

Alkhatib R, Alnaqbi AA, Al-Rubeai M, Karam SM. (2013). Development of a novel method for the identification of mouse gastric stem cells. The 2nd Biotechnology World Congress, Dubai, UAE.

Bahi A, Dreyer JL. (2013). Striatal Modulation of BDNF Expression using MicroRNA124a-Expressing Lentiviral Vectors Impairs Ethanol- Induced Conditioned- Place Preference and Voluntary Alcohol Consumption. Dopamine Congress, Alghero – Sardinia – Italy

Bahi A, Dreyer JL. (2013). Viral-mediated modulation of the brain-specific neural zinc finger transcription factor 2b (NZF-2b/7ZFMyt1) impairs ethanol-conditioned place preference and voluntary alcohol intake in rodents. Society for Neuroscience 43th Annual meeting, San Diego, USA

Emerald BS, D'Souza CM, Ponery AS, Adeghate E, Vijayan R, Mensah-Brown E. (2013). Identification of early indicators of altered metabolic function within the normal birth range. International Conference on the systems biology of human disease, June 12-14, 2013, Heidelberg, Germany.

Emerald BS, D'Souza CM, Ponery AS, Koturan S, Adeghate E, Vijayan R, Mensah-Brown E. (2013). Identification of early indicators of altered metabolic function. International symposium on Karyotype to haplotype and beyond, India, 8-10 Dec.

Giterman D, Adeghate E, Harvey S. (2013). Exocrine growth hormone? Proceedings of the Physiological Society, PCB292.

Mensah Brown E. (2013). Inflammatory in MLD-STZ Diabetes. 10th Cytokine and Inflammation meeting, San Diego, USA

Karam SM. (2013). Morphodynamics of gastric stem cells: from normal to cancer tissues. The 30th Annual Conference of the Microscopy Society of Thailand, Chanthaburi, Thailand.

Pulikkot S, Greish YE, Karam SM. (2013). Polycaprolactone scaffolds trigger growth and differentiation of gastric stem cells. The 2nd Biotechnology World Congress, Dubai, UAE.

Saseedharan P, Greish YE, Karam SM. (2013). Growth of Gastric Stem Cells on Chitosan Scaffold. The 2nd Biotechnology World Congress, Dubai, UAE.

Singh J, D'Souza A, Iqbal I, Adeghate E, Howarth FC, Bidasee KA (2013). Left ventricle structural remodelling in the streptozotocin-induced type 1 diabetic rat. Proceedings of the Physiological Society, PCA022.

RESEARCH GRANTS

CMHS Research Grants

Dr A Bahi (PI) Investigating the roles of microRNAs in addiction to ethanol. Special focus on miRNA-124a

Prof E Adeghate (PI), Dr BS Emerald Irisin: Cellular distribution and effect in the endocrine pancreas of streptozotocin-induced diabetic rats.

Dr BS Emerald (PI), Prof E Adeghate. Isolation, establishment and differentiation of adult muscle stem cells from normal, diabetic and obese rats.

Prof E Mensah Brown (PI) Cellular Bioenergetics of the central nervous system in experimental allergic encephalitis (EAE) of rats.

Prof M Ljubisavljevic (PI), S Shehab. The effects of repeated Repetitive Transcranial Magnetic Stimulation - the profile and duration of changes of gene expression in rat brain.

Drs S Denic (PI), BS Emerald Effect of monandry vs. polyandry on risk of diabetes assessed by DNA methylation and histone modification in Wistar rats.

UAEU-College of Engineering Interdisciplinary Grant

Dr A Al-Naqbi (PI), Prof SM Karam, Dr M Al-Rubeai
Monitoring and analysis of 2D and 3D models for gastric epithelial stem cells in the context of the extracellular microenvironment.

Drs A Mourad (PI), YE Greish, Prof SM Karam
Formation, Characterization and In Vitro Evaluation of Alumina Nanoparticles-reinforced Polymer Composites for Biomedical Applications

UAEU/SQU joint research projects

Dr BS Emerald (PI), Profs EPK Mensah-Brown, E Adeghate
Analysis of molecular epigenetic programming of diabetes mellitus

UAEU-National Research Foundation

Prof S Shehab (PI)
Neuropathic pain due to trauma and inflammation of the viscera

Dr A Bahi (PI)
Involvement of the brain metabotropic glutamate receptor 7 in alcohol-related physiology and behavior.

Dr YE Greish (PI), Prof SM Karam, Dr A Mourad
Nanofibrous Scaffolds for Stem Cell Transplantation.

Profs W Lammers (PI), SM Karam, JD Huizinga
Morphological, electrical & mechanical disturbances in stomach & small intestine of diabetic rats.

Dr A Al Fazari (PI), Profs SM Karam, A Souid
Role of Estrogen in Gastric Epithelial Homeostasis

Dr AA Al Menhali (PI), Prof SM Karam
Molecular and functional studies on the role of parathyroid hormone-like hormone (Pthlh) in the stomach.

Profs FC Howarth (PI), E Adeghate
The AV in diabetes mellitus

Emirates Foundation Research Grant

Prof SM Karam (PI), Dr S Bahrwani
Stem cells and Helicobacter pylori in the stomachs of children

Sheikh Hamdan Award for Medical Sciences

Prof SM Karam (PI)
The role of ghrelin in the gastrointestinal tract of mice

Prof E Adeghate (PI), Dr BS Emerald
The effect of ghrelin on insulin signaling and metabolic parameters of diabetic rats.

The UAEU Center-Based Interdisciplinary Research Grant

Dr BS Emerald (PI), Profs E Adeghate, EPK Mensah-Brown, Dr R Vijayan
Genome wide analysis of early epigenetic targets regulated by histone modifications in type 2 diabetes and obesity. 2013.



2013 Anatomy



Standing left to right:
KM Bagnall, E Adeghate, RS Hameed, S Tariq, S Emerald, A Bahi, S Karam, S Shehab
Seated left to right:
TV Basheer, S Nair, D Galani, EPK Mensah Brown, S Al Shamsi, S Koturan, A Wanniarachi



Department of Biochemistry

Research Profile

Professor & Chair:
Prof H Raza
Professor:
Prof JM Conlon
Prof OMA El-Agnaf
Prof S Galadari
Associate Professor:
Dr AH Al-Marzouqi
Dr M J Fernandez-Cabezudo
Assistant Professor:
Dr Md Emdadul Haque
Dr F Mustafa
Medical Research Specialist:
Dr J Chalissery
Ms A John
Dr M Mechkarska
Dr FT Thayullathil
Mr M Qureshi
Medical Research Technician:
Mr A Qader
Medical Secretary
Ms W Al Shamisi

The diverse research interests of the Department of Biochemistry include investigation of the mechanisms of transcriptional regulation, the molecular basis of diseases induced by retroviruses, the relationship of signal transduction pathways to disease, the effects of environmental agents on immune response, role of oxidative stress and mitochondrial dysfunction in diseases, molecular mechanisms of cellular defense, neurodegenerative diseases, particularly Parkinson's disease, and naturally occurring bioactive peptides. Our main focus is on elucidation of mechanisms of gene regulation, epigenetic regulation and chromatin remodeling, molecular carcinogenesis, molecular basis of neurodegenerative disorders, molecular immunotoxicology, and anticancer/antidiabetic effects of chemicals and drugs.

Prof. Sehamuddin Galadari is now working as an advisor to the Deputy Vice Chancellor for Research and Graduate Studies at UAEU and Dr Ahmed Al-Marzouqi as Director of Research & Funded Projects in the Office of the DVC (Research & Graduate Studies) at UAEU. Prof. Omar El-Agnaf continued as Chair of the Neuroscience Research Priority Group.

Our graduate program in Biochemistry and Molecular Biology (M.Sc. and Ph.D.) at the College of Medicine and Health Sciences is a multi-disciplinary program which provides students with a foundation in Biochemistry, Molecular and Cellular Biology, as

well as intensive state-of-the-art laboratory research training.

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

Research Interest

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

Research Highlights

Our recent study has demonstrated that NSAIDs induce oxidative stress and alter mitochondrial bioenergetics and redox homeostasis. Altered mitochondrial functions and glutathione-dependent redox homeostasis have been implicated in toxicities and diseases including cancer, diabetes, and cardiovascular disorders. We have identified molecular and metabolic targets of cytotoxicity in cancer and non-cancer cell lines. Our recent study has shown that the restoration of antioxidant GSH pool by N-acetylcysteine (NAC) has protective effects on drug-induced toxicities. Our recent studies have also demonstrated that macrophages and hepatoma cells are differentially affected by NSADs when these cells are sensitized by E.coli- LPS which induces oxidative/inflammatory responses.

Using animal models for cigarette/shisha smoke inhalation in a collaborative study, we have demonstrated changes in organ specific metabolic functions and their ability to metabolize and detoxify cancer causing agents. We are also investigating the mitochondrial functions, oxidative stress and drug metabolism in cardiac and other tissues from type 1 and type 2 diabetes using in vivo rat models. We have shown that tissues from type 2 diabetic /obese rats have increased oxidative stress and altered mitochondrial function. We are continuing to study further the mechanism of metabolic and oxidative stress in type 1 and type 2 diabetic rats and to elucidate the mechanism of drug actions in preventing the complications of diabetes. Our studies have resulted in a number of publications in peer reviewed journals.

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 into therapeutically valuable pharmaceutical agents. These include bactericidal and fungicidal peptides as anti-infectives, peptides with potent cytotoxic activity against tumor cells as anti-cancer agents, immunomodulatory peptides with potential as anti-inflammatory drugs, and peptides with in vitro and in vivo insulin-releasing activities as therapy for patients with Type 2 diabetes.

Research highlights

Hymenochirin-1B is a cationic, amphipathic, α -helical, host-defense peptide, first isolated from skin secretions of the Congo clawed frog *Hymenochirus boettgeri* (Pipidae). Structure-activity relationships were investigated by synthesizing analogs in which the Pro5, Glu6 and Asp9 on the hydrophilic face of the α -helix are substituted by one or more L-lysine or D-lysine residues. Although replacement with L-lysine generates analogs with increased antimicrobial potency against a range of Gram-positive and Gram-negative bacteria (up to 8-fold), the peptides are more hemolytic. Increasing the cationicity of hymenochirin-1B while reducing the helicity by substitutions with D-lysine generates analogues that are between 2 and 8 fold more potent than the native peptide and are equally or less hemolytic. [E6k,D9k]hymenochirin-1B represents a candidate for drug development as it shows high potency against clinical isolates of methicillin-resistant *Staphylococcus aureus* (MRSA) and a range of Gram-negative bacteria, including multidrug-resistant strains of *Acinetobacter baumannii* and *Stenotrophomonas maltophilia* (MIC in the range 0.8 – 3.1 μ M) and NDM-1 carbapenemase-producing clinical isolates of *Klebsiella pneumoniae*, *Escherichia coli*, *Enterobacter cloacae* and *Citrobacter freundii* (MIC in the range 3.1 - 6.25 μ M), and low hemolytic activity (LC50 = 302 μ M). [E6k,D9k]hymenochirin-1B shows cytotoxicity against non-small cell lung adenocarcinoma A549 cells, breast adenocarcinoma MDA-MB-231 cell, colorectal adenocarcinoma HT-29 cells, and hepatocarcinoma HepG2 cells (LC50 in the range 2.1 - 21 μ M) suggesting that the analog has therapeutic potential as a template to generate potent, non-toxic anti-cancer

agents. E6k,D9k]hymenochirin-1B, at a concentration of 2.5 μ M, significantly ($P < 0.05$) stimulates the production of the anti-inflammatory cytokines IL-4 and IL-10 by human peripheral blood mononuclear cells but is without significant effect on production of the pro-inflammatory cytokines TNF- α and IL-17.



Ile-Lys-Leu-Ser-Pro- **D-Lys**-Thr-Lys-**D-Lys**-Asn-Leu-Lys-Lys-Val-Leu-Lys Gly-Ala-Ile-Lys-Gly-Ala-Ile-Ala-Val-Ala-Lys-Met-Val.NH₂

The Congo clawed frog *Hymenochirus boettgeri* and the primary structure of the analog [E6k,D9k]hymenochirin-1B

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

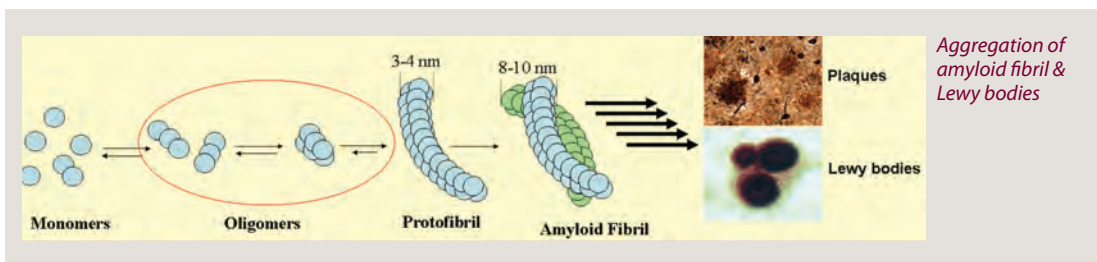
Pathological studies in human neurodegenerative diseases such as Alzheimer’s disease (AD), Parkinson’s disease (PD), dementia with Lewy bodies (DLB), the prion dementias (e.g. mad cow disease and its equivalent, CJD, in humans), British dementia and Huntington’s disease, have revealed abundant protein 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 Interests

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 the National Research Foundation UAE (Dubai), 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).

Research Highlights

In order to assess the discriminating power of multiple cerebrospinal fluid biomarkers for Parkinson’s disease (PD), we measured several proteins playing an important role in the disease pathogenesis. The activities of β -glucocerebrosidase and other lysosomal enzymes together with total and oligomeric α -synuclein, total and phosphorylated tau, were thus assessed in cerebrospinal fluid of 71 PD patients as compared to 45 neurological controls. Activities of β -glucocerebrosidase, β -mannosidase, β -hexosaminidase and β -galactosidase were measured with established enzymatic assays, while α -synuclein and tau biomarkers were evaluated with immunoassays. A subset of PD patients (n=44) was also screened for mutations in the β -glucocerebrosidase-encoding gene (GBA1). In PD group, β -glucocerebrosidase activity was reduced ($p < 0.05$) and patients at earlier stages showed lower enzymatic activity ($p < 0.05$);



conversely, β -hexosaminidase activity was significantly increased ($p < 0.05$). Eight PD patients (18%) presented GBA1 sequence variations; three of them were heterozygous for N370S mutation. Levels of total α -synuclein were significantly reduced ($p < 0.05$) in PD, as opposite to increased levels of α -synuclein oligomers, with a higher oligomeric/total α -synuclein ratio in PD patients compared to controls ($p < 0.001$). Combination of β -glucocerebrosidase activity, oligomeric/total α -synuclein ratio and age gave the best performance in discriminating PD from neurological controls (sensitivity 82%; specificity 71%, area under the curve = 0.87). These results demonstrate the possibility to detect lysosomal dysfunction in cerebrospinal fluid and further support the need to combine different biomarkers for improving the diagnostic accuracy of PD.

phenomenon, is the focus of investigation in my laboratory. The potential utilization of the cholinergic anti-inflammatory pathway to modulate the development of autoimmune diseases, such as diabetes, is also under investigation.

A second area of focus in my laboratory is on the identification of novel biomarkers in breast cancer. In collaboration with colleagues in the Department of Medical Microbiology and Immunology and Tawam Hospital, we are carrying out a study to correlate expression of an intracellular protein involved in gene regulation in human breast cancer with the degree of susceptibility to chemotherapeutic drugs.

Biomarkers	Sensitivity (%)	95% CI	Specificity (%)	95% CI	AUC	DOR	Cut-Off value
GCase	85.71	75.29-92.93	47.62	32.00-63.58	0.64	5.5	<0.88 mU/mL
β -hexosaminidase	80.00	68.23-88.90	52.63	35.82-69.02	0.68	4.4	>3474 mU/mL
t- α -syn	63.08	50.20-74.72	75.76	57.74-88.91	0.68	5.3	<27.5 ng/mL
t- α -syn	81.25	69.54-89.92	41.67	25.51-59.24	0.59	3.1	>2455 RLU
o/t α -syn ratio	56.25	43.28-68.63	85.71	69.74-95.19	0.73	7.7	>5.2

Receiver operator characteristics (ROC) analysis of CSF lysosomal enzyme activities and α -synuclein biomarkers. ROC analysis for the enzyme activities and α -synuclein biomarkers. The best performance as single biomarker was obtained by the ratio between oligomeric and total α -synuclein (o/t- α -syn) in CSF (Area Under the Curve, AUC = 0.73). CI: confidence interval, DOR = diagnostic odds ratio.

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

The main research interest in my lab is to investigate the potential mechanism by which the cholinergic nervous system modulates the immune response in infectious episodes and autoimmune diseases. We have demonstrated that the inhibition of acetylcholinesterase (AChE) enzyme, which results in increased cholinergic pathway activity, modulates anti-bacterial immune responses, leading to increased protection against a lethal infection. The exact mechanisms by which this occurs, as well as the cellular and molecular targets underlying this

Research Highlights

The inflammatory reflex appears to be a powerful means by which inflammation is regulated by the nervous system. We, therefore, investigated the potential effect of the cholinergic reflex pathway on the development of type I diabetes. Using the multiple-low-dose streptozocin model (MLD-STZ) we investigated the influence of AChE inhibition on the susceptibility to develop type I diabetes. As shown in figure 1, pretreatment with paraoxon (inhibitor of AChE) alleviates hyperglycemia observed after administration MLD-STZ. In confirmation of these findings, histological analysis of pancreatic tissue reveals extensive infiltration and damage in STZ treated mice (Fig. 2A). However pretreatment with paraoxon protects against cellular infiltration and damage to the islets (Fig. 2B). The underline immunological mechanism for this effect is currently being investigated.

Figure 1

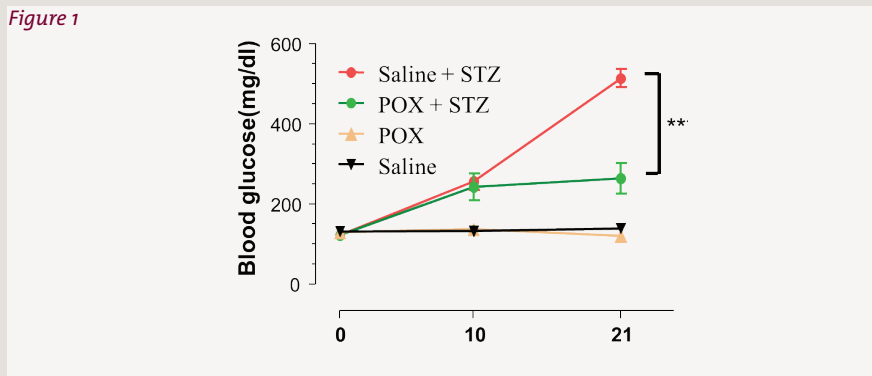
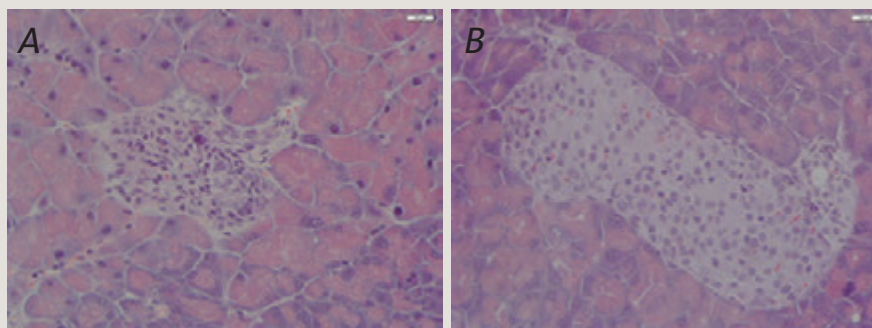


Figure 2



A. Histological analysis of pancreatic tissue reveals extensive infiltration and damage in STZ treated mice
 B. Pretreatment with paraoxon protects against cellular infiltration and damage to the islets

Sphingolipid signaling and its role in cancer therapy (Prof. Sehamuddin Galadari)

Sphingolipids are bioactive molecules that regulate various aspects of cellular proliferation and survival. Modulations of sphingolipids are implicated in the mechanism of action of various anticancer chemotherapeutics. Ceramide and sphingosine are the central molecules of sphingolipid metabolism that mediate anti-proliferative responses, such as cell growth inhibition, apoptosis induction, senescence modulation, endoplasmic reticulum stress responses and/or autophagy regulation. Prevention of human cancer development depends on the integrity of a complex network of defence mechanisms that help cells to respond to various stress conditions. A key player in this network is ceramide, which can selectively destroy wide variety of cancer cells via programmed cell death such as apoptosis, senescence, autophagy and/or necrosis. By inducing efficient growth inhibition and cell death, ceramide eliminates cancer cells and prevents the development of human malignancies.

These functions of ceramide determine the efficacy of several anti-cancer therapies, as they are capable of inducing ceramide generation. However, the tumor suppressive activity of ceramide is hampered by malfunction of its many modulators such as, ceramidases, sphingomyelinases, and glucosyl ceramide synthase. These enzymes govern ceramide's tumor suppressive activity by acting upstream and/or downstream of ceramide biosynthetic pathway. Based on this information, the Cell Signaling Laboratory is focusing on the molecular characterization of sphingolipids in cancer pathway, especially that of tumor suppressor lipids such as ceramide and sphingosine. The goal of our research is to elucidate how ceramide and its metabolite sphingosine communicate and signal in response to anti-cancer treatment. We use both biochemical and molecular cell biological approaches to study the whole family of related sphingolipids that are involved in the tumor suppression.

Recently, we demonstrated for the first time

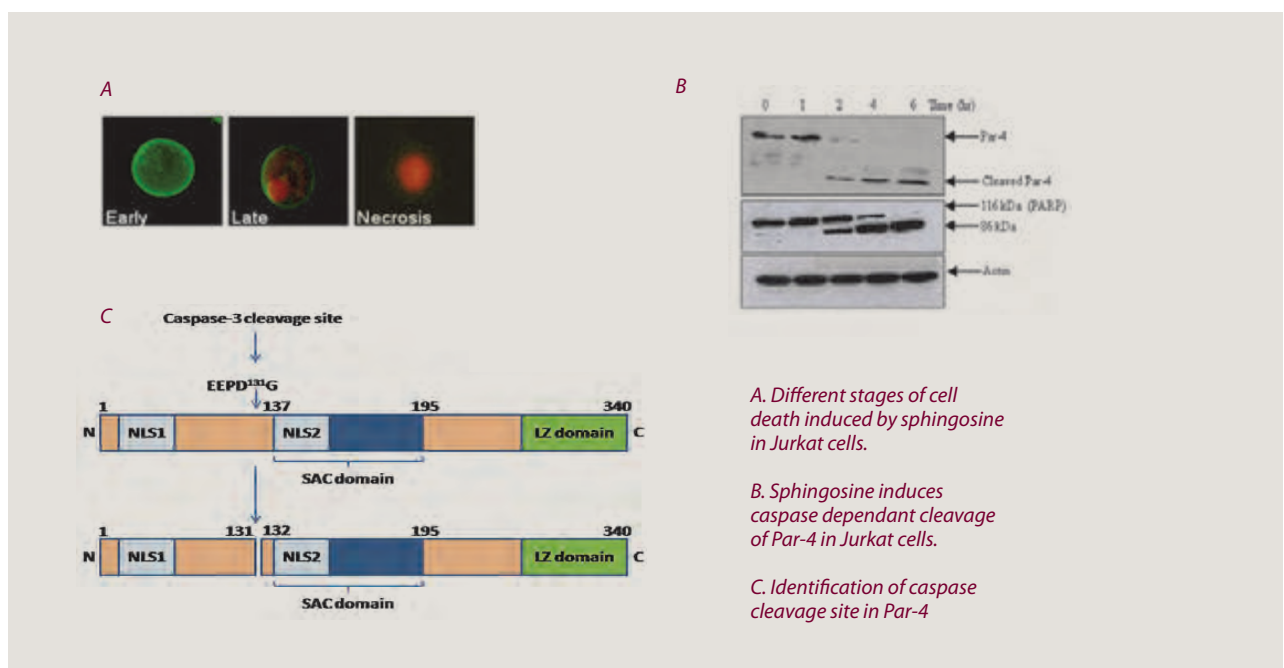
that sphingosine induces caspase-dependant cleavage of prostate apoptosis response-4 (Par-4), which is a tumor-suppressor protein that selectively activates and induces apoptosis in cancer cells, but not in normal or immortalized cells. The cancer specific pro-apoptotic function of Par-4 is encoded in its centrally located SAC (Selective for Apoptosis induction in Cancer cells) domain (amino acids 137-195). The SAC domain is capable of nuclear entry, caspase activation, inhibition of NF- κ B activity, and induction of apoptosis in cancer cells. However, the precise mechanism(s) of how SAC domain is released from Par-4 in response to apoptotic stimulation is not well explored. In our study, we have shown that caspase-3 mediated cleavage of Par-4 leads to the release of SAC domain containing fragment from it. Par-4 was found to be cleaved at the EEPD¹³⁷G site by incubation with caspase-3 in vitro, and by treating cells with several anti-cancer agents. The caspase-3 mediated cleavage of Par-4 is blocked by addition of the pan-caspase inhibitor z-VAD-fmk, caspase-3 specific inhibitor Ac-DEVD-CHO, and by introduction of alanine substitution for D131 residue. Moreover, suppression of SPH-induced Akt dephosphorylation also abrogated the caspase dependant cleavage of Par-4. These findings identify the cleavage of Par-4 which leads release of SAC domain containing fragment, which may possibly be essential to induce SPH-induced apoptosis in Jurkat cell.

Specifically, the Cell Signaling Laboratory (CSL) focuses on the following research areas

- Investigating the role and mechanism of caspase mediated cleavage of Par-4 in the induction of apoptosis
- Elucidating the role and mechanisms of ceramide-induced autophagic cell death in human malignant glioma.
- Development of cancer therapy through adjustment of sphingolipid metabolism in order to accumulate "tumor suppressor lipid" and to decrease "tumor promoting lipids" by using spice derived phytochemicals.

Molecular Basis of Pathogenesis (Dr. Farah Mustafa)

Overall, my research interest lies in the area of molecular basis of diseases induced by retroviruses. These single stranded RNA viruses are well-known pathogens that cause debilitating diseases such as immunodeficiency syndromes and a variety of cancers in both man and animals. My recent focus is on studying the viral etiology of human breast and other cancers. The mouse mammary tumor virus (MMTV) is a retrovirus that causes both breast cancer and leukemia in mice. However, it is increasingly being detected in human breast and other cancers. Controversy surrounds whether this virus has any role to play in human cancer(s). My goal is to systematically study how this virus, if at all, may be involved in human breast and perhaps other cancers such as leukemia/lymphomas



and eventually what role could it be playing in their induction. Additionally, I am interested in the mechanism of MMTV-induced tumors in the host, and regulation of basic steps in MMTV replication and gene expression.

Research Highlights

- Investigating the presence of MMTV-like sequences in the UAE normal and cancer population
- Studies on molecular aspects of MMTV replication

Study the function of Parkinson's Disease associated genes (Dr. M. Emdadul Haque)

The goal of my research is to investigate the function of Parkinson's disease (PD) associated genes. The vast majority of the PD cases are sporadic. However, several familial forms of PD associated genes have been identified which include, α -synuclein (SNCA), Parkin, PINK1, DJ-1 and LRRK2. In addition to these genes, there are several other genes and regulatory elements that accelerate the risk of developing PD in certain individual. These genes are beginning to provide insight into important mechanisms underlying degeneration in PD. Therefore, recapitulation of these gene mutations in model systems have provided powerful tools for studying the underlying mechanisms of PD and will help to develop more appropriate/effective treatments for the disease.

Research Highlights

Functional Interaction and Regulation of Parkinson's Disease linked PINK1 by Novel Mitochondrial m-AAA Protease, AFG3L2

To study the function of PINK1, we performed mass spectroscopy based interactomics study which led to identification of ATPase family gene 3-like 2 (AFG3L2). AFG3L2 along with AFG3L1 and Paraplegin are members of m-AAA protease family which are located in the inner mitochondrial membrane, and are associated with various neurodegenerative disorders. We confirmed that PINK1 and AFG3L2 physically interact by performing co-immunoprecipitation experiment. Interestingly, we also found that AFG3L2 not only cleaves PINK1 but also confers its stability. Interestingly, knockout of AFG3L2 shows decreased processed PINK1 isoforms and total PINK1 in mouse embryonic fibroblasts and cortical neuronal cultures examined. Additionally, we examined Parkin translocation in AFG3L2

deficient cortical neuronal cultures by immunocytochemistry. Increased translocation of Parkin, known to be associated with clearance of damaged mitochondria, was observed in stressed AFG3L2 deficient cortical neurons compared to controls. Taken together, these results suggest that AFG3L2 is involved in PINK1 processing and may play a role in the regulation of PINK1 mediated mitochondrial clearance.

Understanding the Role of Glucocerebrosidase (GBA) in drosophila model of Parkinson's disease and its interaction with α -synuclein.

Glucocerebrosidase (GBA) gene is the most frequent risk factor in developing PD. GBA mutation in both copies is associated with the disease known as Gaucher's Disease. Neuro-pathological studies show that individuals with mutations with GBA develop widespread lewy body pathology characterized by aggregation and accumulations of α -synuclein (SNCA) and dopamine neuron loss. Recent studies have shown that GBA silencing enhances the accumulation of α -synuclein aggregates whereas over-expressed SNCA diminishes the activity of GBA. To get more insight about the function of GBA and its role in dopamine neurons loss, we are establishing drosophila genetic model system silencing GBA in the presence or absence of SNCA. We have collected GBA RNAi flies from Vienna Drosophila RNAi Center, Austria. Currently, we are generating GBA-RNAi fly in the background of overexpressed SNCA. Utilizing tissue specific driver, we will be able to silence the GBA in the presence or absence of SNCA specifically in the dopamine producing neurons to test the effect of GBA protein in dopamine neurons loss and α -synuclein aggregation. Our study will address the functional relationship between two important genes, GBA and SNCA associated with PD. This model would be used for future drug screening.

Mechanisms of Transcriptional Regulation in Chromatin (Dr Ahmed 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. Many studies in the past few years have described conserved protein complexes whose function is to modulate the access of transcription factors to regulatory regions of genes relieving chromatin-mediated repression. The action of these complexes that are able to overcome the repressive effects of chromatin is an important step in the regulation of eukaryotic gene expression.

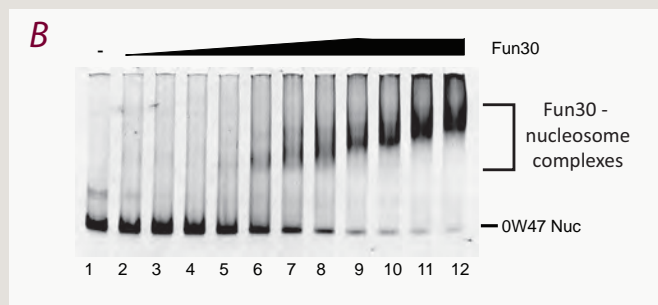
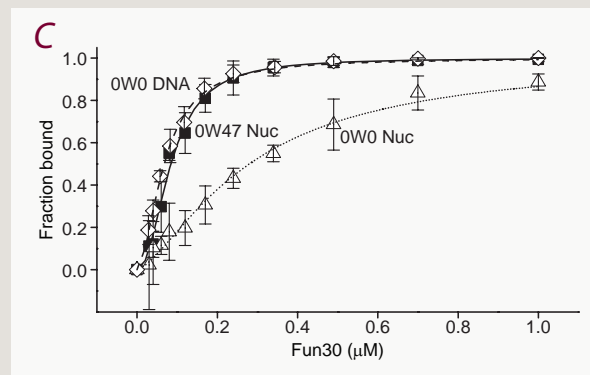
Specifically, the overall goals of my research are to understand how certain proteins can regulate gene expression by modifying the structure of chromatin or interacting with its components. We are interested in how different types of chromatin modifying proteins work in turning genes on or off. We are also interested in studying how chromatin misregulation contributes to cancer development and could be helpful in finding potential cures for it in the future.

Below are two areas of research focus in my laboratory.

A. Physical and Functional Interactions between the Various Chromatin-Modifying Complexes. The aims of this line of research are to gain insight into the mechanisms that

underlie the interactions between the different types of chromatin modifying complexes (i.e. histone deacetylase (HDAC) complexes, and the SWI/SNF ATP-dependent chromatin remodeling complex). We are particularly interested in investigating how these complexes communicate with each other and work together to exert their combined effect towards gene regulation.

We have previously shown that acetylation of nucleosomal array templates by histone acetyltransferase (HAT) complexes stabilizes SWI/SNF binding to promoter nucleosomes after the dissociation of the activator. Many chromatin-modifying complexes, including SWI/SNF and SAGA, contain highly conserved bromodomains that bind to acetylated lysine residues in histone N-terminal tails *in vitro*. Later, using immobilized template assays, we have shown that the Swi2/Snf2 and Gcn5 bromodomains play important roles in the anchoring of the SWI/SNF and SAGA complexes to acetylated promoters, respectively. More recently, we have demonstrated the requirement of the Swi2/Snf2 bromodomain for the functional activity of the complex on SAGA-acetylated nucleosomes. These studies illustrate a novel and significant role of the Swi2/



The Fun30 binds DNA and chromatin. A, Fun30 binds to nucleosome arrays efficiently. Immobilized G5E4 (either DNA or reconstituted into nucleosomal arrays), generated as described under "Experimental Procedures," was incubated with an equal amount of Fun30 (lanes 7–10) or the SWI/SNF complex (lanes 2–5, as control) based on anti-TAP Western blotting normalization. The amount of bound protein (SWI/SNF complex or Fun30) was determined by separating the supernatants (S) from the beads (B), washing the beads, and running them on a 12% SDS gel followed by Western blot analysis using the anti-TAP antibody for detection of the proteins.

Snf2 bromodomain in remodeling of acetylated promoter nucleosomes and in displacing SAGA from promoters.

B. Identification and Characterization of Novel ATP-Dependent Chromatin Remodeling Complexes.

Phylogenetic analysis shows that chromatin-remodeling proteins share several common features including the presence of a distinct ATPase domain. Based on sequence homology to this domain of the Swi2/Snf2 subunit of the SW/SNF, we have recently identified new candidate remodeling proteins. With purified complexes in hand, a growing panel of in vitro and in vivo assays, a new wealth of knowledge regarding the mechanisms of actions of many chromatin-remodeling complexes, and the ease of genetic manipulations in yeast, we are now poised to carry out mechanistic biochemical and genetic investigations of their functions and their inter-relationships. In this part, our focus is to initially identify and biochemically characterize these potential novel chromatin remodelers, followed by studies on their mechanisms of action in gene regulation.

The fact that similar and several chromatin remodeling complexes are present across the eukaryotic kingdom, from unicellular yeast to humans, supports the notion that they were maintained in evolution due to their important role in the regulation of gene expression. Identification, characterization, and investigations of action of novel chromatin remodeling complexes is very exciting and could lead to the identification of drug targets and the development of potential drugs to cure human disease specifically cancer in the future.

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Proceedings, Conferences, Invited Lectures, Web Sites and Others

Aktar SJ, Vivet-Boudou V, Jabeen A, Ali LM, Richer D, Mustafa F, Marquet R, Rizvi TA. (2013). SHAPE validated secondary structure of the mouse mammary tumor virus (MMTV) packaging signal RNA reveals a pal helix loop functioning as dimerization initiation site controlling gRNA packaging. 38th annual meeting on Retroviruses, Cold Spring Harbor, NY USA. May 20-25, 2013.

Ammarah Ghaffar, Muaz Niazi, and Farah Mustafa. (2013). Correlation of Structural Significance with Complex Network Centrality Measures of the tRNA-gly Molecule. 10th International Bhurban Conference on Applied Sciences and Technology, National Centre for Physics, Islamabad, Pakistan. January 15-19, 2013.

al-Ramadi BK, Issac JM, El-Ojali S, Mohamed YA, Al-Ketbi Mai I, Fernandez-Cabezudo MJ. (2013). Differential regulation of immune responses in MyD88-deficient mice by cytokine-expressing *Salmonella typhimurium*. 100 Annual Meeting of The American Association of Immunologists, Honolulu, Hawaii, USA. (May 3-7), 2013.

Fernández-Cabezudo MJ, Al-Barazie R, al-Ramadi B. (2013). Inhibition of Acetylcholinesterase regulates the anti-microbial immune response. 100 Annual Meeting of The American Association of Immunologists, Honolulu, Hawaii, USA. (May 3-7), 2013.

Hassan AH. (2013). The Molecular Functions of Chromatin Modifiers. Pan Arab 5th Genetics Conference November, 2013, Dubai, UAE.

Issac JM, Mohammed Y, Nasser HT, Rabah M, Fernandez-Cabezudo MJ, Conca W, al-Ramadi BK. (2013). Regulation of autoimmune responses by the innate immune

system in response to bacterial infections. 15th International Congress of Immunology, Milan, Italy. (August 22-27).

Marcogliese PC, Abuaiash S, Abdel-Messih E, Kabbach G, Seang S, Li G, Slack RS, Haque ME, Venderova K, Park DS. (2013). Understanding Parkinson's disease: Elucidating LRRK2 Genetic Interactors using *Drosophila*. AD/PD 2013, Florence, Italy, March 6-10, 2013.

Rahman A, Pallichankandy S, Thayyullathil F, Galadari S. (2013). Molecular Mechanisms of the Anti-Leukemic Effect of Sphingosine, UAE Cancer Congress 2013. Dubai, UAE. October 3-5.

Raza H, John A, Nemmar AR. (2013). Short-term effect of nose-only cigarette smoke exposure on redox homeostasis and mitochondrial metabolism in mice. 104th Annual Meeting of American Association for Cancer Research, AACR, Washington DC, USA April 6-11, 2013. *Proc. Amer. Assoc. Cancer Res.* 54.

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Seegobin MA, Haque ME, Farazifard R, Slack RS, Figeys D, Park DS. (2013). Examining the functional interaction of the m-AAA protease AFG3L2 with PINK1. World Parkinson Congress: Montreal, Canada, October 1-4, 2013.

Vaikath NN, Majbour N, Ardah MT, Varghese S, Halliday G, Gai W, van de Berg W, Parkkinen L, Haque ME, Li JY, El-Agnaf OM. (2013). Development and Characterization of Specific Monoclonal Antibodies against Alpha-synuclein Aggregates. AD/PD 2013, Florence, Italy, March 6-10, 2013.



RESEARCH GRANTS

CMHS Research Grants

Prof JM Conlon [PI]

Structure-activity study of the broad-spectrum antimicrobial peptide hymenochirin-1B

Prof H Raza [PI]

Streptozotocin-induced cytotoxicity and its prevention: implication of oxidative stress and mitochondrial dysfunction

Dr J Fernandez-Cabezudo [PI]

Mechanisms of Manuka honey-induced death of human breast cancer cells

Prof S Galadari [PI]

Investigating the role and mechanisms of FTY-720 induced autophagic cell death in human malignant glioma cells.

Dr F Mustafa [PI]

Molecular and Functional Characterization of MMTV Env Polymorphisms Important for Infection of Human Cells

Dr ME Haque [PI]

Study the Functional Relationship between GBA and α -synuclein in drosophila model of Parkinson's disease.

Terry Fox Cancer Research Funds

Prof H Raza [PI]

Alterations in mitochondrial bioenergetics and glutathione metabolism by NSAIDs (non-steroidal anti-inflammatory drugs): implications in cancer prevention and treatment (Continuation).

Prof S Galadari [PI]

Characterization of curcumin signal transduction and apoptosis as possible target for chemotherapy (Continuation)

Dr A Al-Marzouqi [PI]

Functional Analysis of the Snf2-family Protein IRC5 in DNA Repair and Cancer

Sheikh Hamadan Medical Research Award:

Prof H Raza [PI]

Elucidation of the molecular mech-

anisms and metabolic changes in inflammation and diabetes: Anti-diabetic and anti-inflammatory effects of non-steroidal anti-inflammatory drugs (NSAIDs).

Dr J Fernandez-Cabezudo [PI]

Neuro-immune modulation of inflammatory diseases: potential role in the amelioration of diabetes (2013-2015)

Prof S Galadari [PI]

Novel ceramide-based chemotherapy for prostate carcinoma

Dr F Mustafa [PI]

Investigation of Mouse Mammary Tumor Virus (MMTV) Presence in the UAE Population: A Putative Viral Agent in Human Breast Cancer

National Research Foundation/ UAE University Research Office

Prof S Galadari [PI]

Investigating the role and mechanism of Par-4 cleavage in tumor suppression

Dr J Fernandez-Cabezudo [PI]

Neuro-immune modulation of inflammatory diseases: potential role in the amelioration of diabetes (2012-2014).

Dr F Mustafa [PI]

Characterization of Mouse Mammary Tumor Virus (MMTV) in Human Tumors in the UAE: Is MMTV a General Biological Carcinogen?

Dr ME Haque [PI]

Role of Glucocerebrosidase (GBA) in drosophila model of Parkinson's disease and its interaction with α -synuclein.

Dr A Al-Marzouqi [PI]

Molecular Mechanisms of Gene Regulation through Epigenetics: the Role of Chromatin Remodelers in Cancer.

Prof O El -Agnaf [PI]

Developing a new therapeutic strategy for Parkinson's disease and related disorders. 2011-2014.

UAE University Research Office, UAE

Prof O El -Agnaf [PI]

Application of conformation-

specific antibodies to biomarker development for Parkinson's disease. 2014 – 2016.

Prof O El -Agnaf [PI]

Novel conformation-specific antibodies for immunotherapeutic intervention in Parkinson's disease and related disorders. 2014 – 2016.

Emirates Foundation, Abu Dhabi, UAE

Dr A Al-Marzouqi [PI]

The Cooperation and/or Competition between the ATP-dependant Chromatin-Remodeling Protein SWI/SNF and the Histone Acetyltransferase SAGA in Binding to Nucleosomes

UAE University Start-Up Grant. UAEU, Al Ain, UAE

Dr F Mustafa [PI]

Investigations into the Mechanism of Replication, Gene Expression, and Oncogenesis Using the Mouse Mammary Tumor Virus Model System

Dr ME Haque [PI]

Study the molecular pathways of neurodegeneration and drug targets for treatment of neurodegenerative disorders.

Alzheimer's Drug Discovery Foundation (NY, USA).

Prof O El -Agnaf [PI]

Testing a combination of CSF biomarkers for discriminating dementia with Lewy bodies from other neurodegenerative disorders and controls. 2013 – 2014.

Patent

Prof O El -Agnaf

Alpha-synuclein Antibodies and Uses Thereof, USPTO/ Application No. US13/781,158./ filed 03rd March 2013.

2013

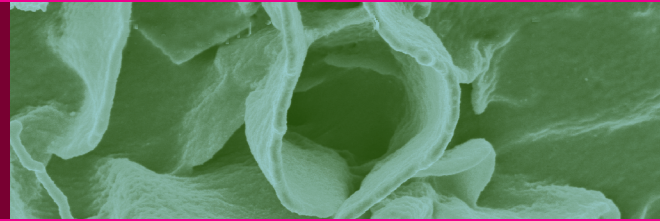
Biochemistry



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

www.cmhs.uaeu.ac.ae/Departments/Biochemistry Tel: 7672000 / Fax: 7672033

Department of Family Medicine



Research Profile

With a research focus on patient-physician communication, health education and learning portfolios, the Department of Family Medicine has been active in advancing the standards of patient care regionally. The Department of Family Medicine takes the lead in mixed methods studies and innovative action research projects that are tightly linked to improving quality within the project lifecycle. This year we continue our agenda in translational research and support the development of faculty members in collaborative projects with local healthcare service providers.

Chair & Associate Professor:

Dr EAM Prinsloo

Assistant Professor:

Dr MAB Khan

Dr C Clor

Dr MJ Hashim

Dr U Lashari

Medical Research Specialist:

Ms H Mustafa

Medical Secretary:

Ms N Al Naqbi

Faculty Profile

Adri Prinsloo is an Associate Professor who is an International member of the Editorial Board of the South African Family Practice Journal and a frequent reviewer of articles for the African Journal of Primary Healthcare & Family Medicine and Southern African Journal of Epidemiology and Infection. She reviewed 8 articles in the past year. She acts as supervisor of Family Medicine residents for research projects as part of their post graduate study. She is a member of the HAAD accredited Ambulatory Health Services Research committee and the Al Ain Family Medicine Residency Research committee.

Jawad Hashim is an Assistant Professor with research interests in health systems improvement, health promotion, and medical informatics. With expertise in statistical data analysis and multivariate modeling, he collaborates with research across disciplines to explore new insights in behavioral health, cancer biomarkers and acute coronary care. He was recently an invited speaker at the 2nd Annual Child Mental and Behavioral Health Conference 2014, in Abu Dhabi.

Usman Lashari is an Assistant Professor and coordinator for postgraduate residency program in Family Medicine in Al-Ain. He was part of Postgraduate Residency Program in general practice in London. He has worked as a community dermatologist in London before joining UAEU. He is an accredited clinical supervisor and trainer and clinical appraiser for London Deanery.

Moienudeen Khan joined UAE University in April 2013. He initially completed his post graduate basic specialist training from Royal London Hospital working in different pediatric sub specialties for more than 3 years. Later on Moien did his postgraduate training in family medicine. Dr. Moien is passionate about treating diabetes in the community. To complement his special interest he did a Master's degree in diabetes from the United Kingdom. He regularly participates in international conferences on diabetes care.

To provide holistic care to his patients while working as a family physician he developed several interests in dermatology, occupational medicine, gynecology and family planning backed by advanced training and postgraduate degrees in these specialties in United Kingdom.

Moien is an accredited clinical supervisor for postgraduate trainees in family medicine from Welsh and London Deanery. Moien also was the clinical lead at his practice for training Kings College medical students in the community. His research interests include diabetes care.

Casey Clor joined UAE University in September 2014. His interest is in Geriatrics and implementing comprehensive geriatric care programs locally. His research is directed at increasing the use of Geriatric guidelines during primary care patient contacts and improving the care elderly patients receive in all clinics in the UAE. He is also developing the undergraduate geriatric curriculum in the UAEU.

Faculty Research Profile

Engela Prinsloo is involved in ongoing research exploring the use of reflective portfolios tutor support and feedback to students in a family medicine clerkship. The use of reflective portfolios to teach and assess ethics, professionalism and the hidden curriculum is the current focus.

Portfolio use in residency programs is also ongoing. Dr. Prinsloo supported residents to conduct, complete and present studies relevant to the health of the Al Ain population including a study on prevalence of vitamin D deficiency and a descriptive study on Mycobacterium tuberculosis infection.

Jawad Hashim has a research interest in improving patient care by providing physicians with clinical decision support at the point-of-care. Clinical decision support includes treatment guidelines as well as warning alerts such as for drug-drug interactions during prescribing in an electronic health record system. His research is directed at increasing ease of access to pertinent medical literature during patient care with the goal of evidence-based health care delivery. Areas for improving clinical decision support uncovered in his research include human-computer interface design issues specific to medical student learning. He is also exploring the role of paper-based clinical decision support as an alternative strategy to improve medical decision-making. Dr. Hashim provides statistical and research study design guidance within the College of Medicine as well as for local healthcare centers such as the Sheikh Khalifa Medical City.

Usman Lashari has recently joined UAEU in March 2012. He was part of Postgraduate Residency Program in general practice in London. He has worked as a community dermatologist in London before joining UAEU. He is an accredited clinical supervisor and trainer and clinical appraiser for London Deanery. His main areas of interest are Postgraduate Medical Education and Dermatology in Primary Care. He is a Fellow of American Academy of Dermatology.

Moienudeen Khan joined UAEU in April 2013. He was the clinical lead for medical education and Diabetes while practicing in London. His main areas of interest are looking at management of Type 2 Diabetes and medical education. To continue his ongoing quest for diabetes research, Moien is keen in collaborating with other researchers in other departments and organizations.

Casey Clor is an Assistant Professor with research interests in geriatrics, preventive medicine and obesity. His recently completed

projects include a survey of geriatric care guidelines in the region and the availability of geriatric care applications for smart phones and tablets.

Projects Profile

The current research focus of members in the department address pertinent health concerns of the UAEU population including vitamin D deficiency and awareness regarding communicable diseases such as tuberculosis. Impact of the changes in the health care industry with use of electrical medical record system is explored and alternatives in decision making tools for health care providers aiming to improve quality of care are addressed. Professionalism and sensitizing medical students about the need of continued medical education are objectives of the ongoing portfolio research project. Studies initiated earlier on cultural sensitivities in breaking bad news to patients and on online health education are still in progress. We continue our agenda in translational research and support the development of faculty members in collaborative projects with local healthcare service providers.

On-going work:

Interactive electronic portfolios to enhance students' reflective practice and address ethics, professionalism and the hidden curriculum

A four cycle reflective 'plan, act, revise,' action research study involving faculty and students on reflective portfolios were conducted between 2009 and 2013. Interviews with faculty and final data analysis are outstanding for completion of the study.

Due to identified frustration with functionality and duplication with the format of the online portfolio, and the need to increase interactivity in the portfolio, the format changed from blackboard to a web based portfolio and finally back to the black board using the blog feature as part of the online portfolio. The study enabled the development of a conceptual framework for educational portfolios use in local medical education. Research on e-portfolio use is currently focusing on the value and use in assessment and teaching of ethics, professionalism and medical law.

Research and Academic Collaboration

Dr. Adriana Prinsloo is an International member of the Editorial Board of the South African Family Practice Journal and a reviewer

of articles for the African Journal of Primary Healthcare & Family Medicine, South African Family Practice Journal, Acta Academica South Africa and Southern African Journal of Epidemiology and Infection. During the past year she has reviewed 8 articles for publication in these journals.

Assistant Professor M Jawad Hashim is engaged in research on health education and health informatics. Health education using emerging media such as smartphone apps and social networks has created a buzz in the healthcare industry and academia over the past year with dedicated journal issues on the subject. Recently, Dr. Hashim proposed a bold new framework for eHealth at an international conference. Well received by the audience, this paradigm change in how we approach eHealth projects builds on previous research but also changes the way healthcare professionals and administrators need to approach the new media. Dr Hashim's research interests include clinical decision support for physicians to provide evidence-based guidelines at the point-of-care. In addition, he has on-going collaborations with researchers in other departments as well as PhD students for multivariate modeling and statistical analyses.

Articles in Peer-reviewed Journals

Hashim MJ, Mustafa H, Al Abdouli AO, Abdulla Al RA, AlQahtani SM, Almajed SA, et al. (2013). Health education materials for Arab patients: content and design preferences. *Med Princ Pract*, 22(4):411–4.

Hashim MJ, Alkaabi MSKM, Bharwani S. (2013). Interpretation of way-finding healthcare symbols by a multicultural population: Navigation signage design for global health. [in press] 55

Hashim MJ, Prinsloo A, Mirza DM. (2013). Quality improvement tools for chronic disease care – more effective processes are less likely to be implemented in developing countries. *International Journal of Health Care Quality Assurance*, Jan 4; 26(1):14–9.

Hashim MJ, Major S, Mirza DM, Prinsloo E, Osman O, Amiri, Leena, et al. (2013). Medical Students Learning Communication Skills in a Second Language Empathy and expectations. *Sultan Qaboos University Med J*, Feb 13;13(1):100–6.



Books, Chapters, Reviews and Editorials

Hashim MJ. (2013). Thyroid Nodule. *Taylor's Differential Diagnosis Manual: Symptoms and Signs in the Time-Limited Encounter*. 3rd ed. Philadelphia: Lippincott Williams & Wilkins; 2013



Proceedings, Conferences, Invited Lectures, Web Sites and Others

Hashim MJ. (2013). eHealth Framework: a theoretical model and practical guidelines for online health education. *Diversity of Interdisciplinary and Integrative Paradigms conference*. Malaysia.

Hashim MJ, Khan M. (2013). Cancer Screening – regional guidelines and research evidence. *UAE Cancer Conference*. Dubai.

Hashim MJ, Khan MAB. (2013). eHealth Education for Diabetes – optimal strategies for software apps

from the users' perspective. *Seha Research Conference*. Abu Dhabi.

Khan M. (2013). Association of infections with Type 2 Diabetes in Primary Care. *National Diabetes Institute, Diabetes Asia 2013 Conference*, October 24 – 27, Kuala Lumpur – Malaysia.

Lashari U. (2013). Treatment of common musculoskeletal problems in primary care: a retrospective study. *Seha Research Conference*. Abu Dhabi.

Major S. (2013). Medical educators on the move: experiences of international medical educators. *AMEE*.

Prinsloo EAM, Major SC, Hashim MJ. (2013). Is reflective writing a solution to teaching and assessing professionalism and ethics? *International Conference on Medical Education: Health Professions Education: Aspiring for Excellence*. Oct 4 – 6, Mauritius.

RESEARCH GRANTS

CMHS Research Grants

Dr MJ Hashim [PI]
Clinical Decision Support for Improving Patient Care in Al Ain - Action Research. 2013/NP/13/20.



2013

Family Medicine



*Standing left to right:
MJ Hashim, M Khan, U Lashari,
C Clor
Seated left to right:
N Al Naqbi, EA Prinsloo, H Mustafa*

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Institute of Public Health

Research Profile

*Associate Professor,
Acting Chair:*

Dr I Blair

Professor:

Prof T-C Aw

Prof N Nagelkerke¹

Associate Professor:

Dr F Al-Maskari

Dr M Grivna

Dr S Shah

Dr M Sheek-Hussein

Assistant Professor:

Dr R Ali²

Dr D Handysides³

Dr T Loney

Dr A Oulhaj⁴

Dr J Schneider⁵

Medical Research Specialist:

Ms I Elbarazi

Ms R Kurdi⁶

Academic Assistant:

Dr M El Sadig

Medical Secretary:

Ms A Kaljee

Research/Admin Assistant:

Ms Soha Ali

In 2013, staff and faculty at the Institute of Public Health continued to build on their track record in research. Research successes included receipt of a number of grants following competitive bids, securing continuation of research funding from grant-awarding bodies and an increase in the number of publications by faculty and staff.

The Occupational Medicine Research Group (OMRG) further developed their research and educational activities both in the UAE and neighboring countries. Research successes include the publication of several articles in peer-reviewed scientific journals. The research efforts of the Institute are supported by research officers and administrative staff. They are an integral part of the research teams, and provide help with logistical and procedural aspects of research projects including ethical clearance, translation, recruitment, training of investigators, and links with government departments. The Institute of Public Health acknowledges their support.

Research interests of Faculty and staff

Prof Tar-Ching Aw: US Board-certified in occupational medicine with a special interest in occupational toxicology and public health. He is a member of the international advisory board for several peer-reviewed journals, including Occupational Medicine (Oxford), and Safety and Health at Work. He is also a member of the UK Health and Safety Executive's working group on action to control chemicals (WATCH), and was designated director of the WHO Collaborating Centre for Occupational Health based at UAE University at the end of 2013. This is the first WHO collaborating center for occupational health in the region.

¹ Departed on 31 October 2013

² Departed on 31 December 2013

³ Departed on 6 June 2013

⁴ Joined on 3 November 2013

⁵ Departed on 29 August 2013

⁶ Departed on 3 June 2013

Prof Nico Nagelkerke: Senior biostatistician with a special interest in statistical methodology and infectious disease modeling. Prof. Nagelkerke departed from the Institute on 31 October 2013.

Dr Abderrahim Oulhaj: Senior biostatistician with a special interest in the statistical modeling of diabetes and cardio-vascular complications, neuro-degenerative diseases (Alzheimer's), advanced survival analysis and mixed effects modeling. Dr Oulhaj joined the Institute on 3 November 2013 from the University of Oxford where he worked as a senior biostatistician for almost 9 years. He also holds a Chartered Statistician (CStat) award from the Royal statistical society (RSS).

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

Dr Iain Blair: Public health consultant with a background in UK health protection. He has published articles on the surveillance and control of infectious diseases and has co-authored a textbook on health protection and several book chapters. His current research interests focus on the UAE health system, demography and the burden of disease.

Dr Michal Grivna: Public health consultant with a special interest in injury control, child, school, traffic and community safety, health promotion. His more recent research interests include injury surveillance/trauma registration and other public health issues such as tobacco addiction and HIV/AIDS prevention in the UAE. He was a founding member of the European Child Safety Alliance and the Centre for Childhood Injury Epidemiology and Prevention in the Czech Republic. Dr Grivna is a leading figure in the promotion and implementation of "WHO - Safe Community Programs".

Dr Syed Shah: Chronic disease epidemiologist

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

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

Dr Raghieb Ali: Clinical epidemiologist with research interests in the epidemiology of non-communicable diseases (particularly cancer), clinical trials, and global health. Dr. Ali departed the Institute on 31 December.

Dr Daniel Handysides: Health educator trained at Loma Linda University, specializing in behavior change and risk perceptions. He has a strong background in program development and evaluation. His research interests surround high risk behaviors and the perceptions individuals hold towards health. Dr Handysides returned to Loma Linda University full time in June of 2013, where he is still working in partnership with UAEU and the International Commission for the Prevention of Alcoholism and Drug Dependency (ICPA) on smoking issues within UAE.

Dr Tom Loney: Occupational and environmental health scientist with a special interest in human performance optimization of personnel employed in challenging environments, exercise prescription for public health, measurement issues related to human physiological monitoring, and the epidemiology of non-communicable diseases amongst migrant workers.

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 Schneider departed the Institute on 31 August 2013.

Ms Iffat Elbarazi: Research specialist in public

health with special interest in occupational mental and psychological health and in the promotion of women's occupational wellness. Additional research interests include clinical and community health education and promotion with a special focus on health promotion in health services.

Dr Mohamed El-Sadig:

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

Ms Rana Kurdi:

Research specialist in basic science and public health research with a Masters degree in Public Health, Epidemiology and Biostatistics. Ms Kurdi departed the Institute on 3rd June 2013.

Articles in Peer-reviewed Journals

Adem A, Al Haj M, Benedict S, Yasin J, Nagelkerke N, Nyberg F, Yandle TG, Frampton CM, Lewis LK, Nicholls MG, Kazzam E. (2013). ANP and BNP responses to dehydration in the one-humped camel and effects of blocking the renin-angiotensin system. *PLoS One*. 2013;8(3):e57806.

Al Mehairi A, Khouri A, Al Naqbi M, Al Muhairi S, Shah S, Al Maskari F, Al Dhaheri AS, Nagelkerke N. (2013). Metabolic Syndrome among Emirati adolescents: a cross-sectional study. *PLoS One*. 8(2):e56159.

Al Muhairi S, Al Naqbi M, Khouri AA, Al Mehairi A, Al Maskari F, Nagelkerke N, Shah SM. (2013). Risk factors for low serum 25-hydroxyvitamin D concentrations in an urban adolescent population of the United Arab Emirates. *BMC Public Health*. Jan 14; 13 (1):33.

Ali HI, Jarrar AH, El Sadig M, Yeatts KB. (2013). Diet and Carbohydrate Food Knowledge of Multi-Ethnic Women: A Comparative Analysis of Pregnant Women with and without Gestational Diabetes Mellitus. *PLoS ONE*. 09/2013; Volume 8(Issue 9):e73486.

Ali HI, Ng SW, Zaghloul S, Harrison GG, Qazaq HS, El Sadig M, Yeatts K. (2013). High proportion of 6 to 18-year-old children and adolescents in the United Arab Emirates are not meeting dietary recommendations. *Nutrition research (New York, N.Y.)*. 06/2013; 33(6):447-56.

Aljunaibi A, Abdulle A, Nagelkerke N. (2013). Parental weight perceptions: a cause for concern in the prevention and management of childhood obesity in the United Arab Emirates. *PLoS One*. 2013;8(3):e59923.

Al-Maskari F, El-Sadig M, Al-Kaabi JM, Afandi B, Nagelkerke N, Yeatts KB. (2013). Knowledge, attitude and practices of diabetic patients in the United Arab Emirates. *PLoS One*. 8(1):e52857.

- Al-Salam S, Awwad A, Sudhadevi M, Daoud S, Nagelkerke NJ, Castella A, Chong SM, Alashari M. (2013). Epstein-Barr virus infection correlates with the expression of COX-2, p16(INK4A) and p53 in classic Hodgkin lymphoma. *Int J Clin Exp Pathol.* 2013 Nov 15;6(12):2765-77.
- Arora P, Nagelkerke NJ, Moineddin R, Bhattacharya M, Jha P. (2013). Female sex work interventions and changes in HIV and syphilis infection risks from 2003 to 2008 in India: a repeated cross-sectional study. *BMJ Open.* 2013 Jun 20;3(6). pii:e002724.
- Den Boer JW, Euser SM, Nagelkerke NJ, Schuren F, Jarraud S, Etienne J. (2013). Prediction of the origin of French Legionella pneumophila strains using a mixed-genome microarray. *BMC Genomics.* 2013 Jul 1;14:435.
- Denic S, Aden B, Nagelkerke N, Essa AA. (2013). β -Thalassemia in Abu Dhabi: consanguinity and tribal stratification are major factors explaining the high prevalence of the disease. *Hemoglobin.* 2013;37(4):351-8.
- Duerink DO, Hadi U, Lestari ES, Roeshadi D, Wahyono H, Nagelkerke NJ, Van der Meulen RG, Van den Broek PJ. (2013). A tool to assess knowledge, attitude and behavior of Indonesian health care workers regarding infection control. *Acta Med Indones.* 2013 Jul;45(3):206-15.
- Fidler V, Nagelkerke N. (2013). The Mantel-Haenszel procedure revisited: models and generalizations. *PLoS One.* 2013;8(3):e58327.
- Gamblin J, Jefferies JM, Harris S, Ahmad N, Marsh P, Faust SN, Fraser S, Moore M, Roderick P, Blair I, Clarke SC. (2013). Nasal self-swabbing for estimating the prevalence of Staphylococcus aureus in the community. *J Med Microbiol.* 2013 Mar;62(Pt 3):437-40.
- Grivna M, Abu-Zidan FM, Eid HO. (2013). Pediatric and youth traffic-collision injuries in Al Ain, United Arab Emirates: A prospective study. *PLOS One* 2013;8(7):e68636.
- Grivna M, Barss P, Al-Dhahab A, Al-Hanaee A, Al-Kaabi F, Al-Muhairi S. (2013). Babywalker injury awareness among grade 12 girls in a high-prevalence Arab country in the Middle East. *Asia Pacific Journal of Public Health.* [Epub ahead of print].
- Grivna M, Barss P, Stanculescu C, Eid OH, Abu-Zidan FM. (2013). Child and youth traffic-related injuries: Use of trauma registry to identify priorities for prevention in the United Arab Emirates. *Traffic Inj Prev.* 14(3):274-82.
- Grivna M, Eid HO, Abu-Zidan FM. (2013). Epidemiology of burns in the United Arab Emirates: Lessons for prevention. *Burns.* [Epub ahead of print].
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- Loney T, Standage M, Thompson D, Walhin JP. (2013). Walkabout to Workout? Effect of a walking intervention on cardiovascular risk factors in office workers: A pilot randomised controlled trial. The 6th International Commission on Occupational Health (ICOH) International Conference on Work Environment and Cardiovascular Diseases, Tokyo, Japan, March 27-30, 2013.
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- Loney T. (2013). Occupational Physical Activity & the Prevention of Ill-Health in the Workplace. The 1st Abu Dhabi National Oil Company (ADNOC) International Conference on Ideal Occupational Health Practices Abu Dhabi, United Arab Emirates, November 25-26, 2013.
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Shah SM, Hashim J, Chandra S, Loney T, Blair A, Aw TC. (2013). Awareness, medication use and control of blood pressure in an immigrant population of United Arab Emirates. The 1st Arab World Conference on Public Health, Dubai, United Arab Emirates, April 4-6, 2013.

Sheek-Hussein MM, Hashmey R, Al Suwaidi A, Al Maskari F, Amiri L, Souid AK. (2013). Seroprevalence of measles, mumps, rubella, varicella-zoster and hepatitis A-C in Emirati medical students. The Canadian Public Health Association (CPHA) 2013 Annual Conference, held at the Ottawa Convention Centre, 9 to 12 June 2013.

Sheek-Hussein MM. (2013). Prevention and Public health: Capabilities and Trends in the UAE. National Defense College, Abu Dhabi, 3 October 2013.

Sheek-Hussein MM. (2013). Women's & Children's Health in the United Arab Emirates. Dubai Harvard Foundation Workshop on Women's, Children's and Maternal Health, Dubai, UAE, 29 May 2013.

Sheek-Hussein, M. (2013). Seroprevalences of Measles, Mumps, Rubella, Varicella-Zoster, HAV, HBV and HCV in Emirati Medical Students. 2013 CPHA Annual Conference, 10 June 2013.



RESEARCH GRANTS

CMHS Research Grant

Dr MM Sheek-Hussein [PI], Drs F Al Maskari, A Al Suwaidi, A Jacobs, H Elbiss, A Oulhaj, Prof AK Souid. (2013).

Seroprevalence of influenza and other pathogens in pregnant women and their newborn in the United Arab Emirates.

UAE University Individual Research Grant

Drs AS Al Dhaheri [PI], SM Shah [Co-PI], A Jarrar, HM AlHourani. (2013). The relationship between body mass index, body circumferences, and skinfold thickness with im-

paired fasting glucose and blood pressure among UAEU female students.

Drs SM Shah [PI], J Al Kaabi, F Al Maskari, AS Al Dhaheri. (2013). University-Community Partnership for Diabetes Prevention in Youth.

UAE University Program for Advanced Research

Dr T Loney [PI], Profs TC Aw, A Adem (2013).

Toxicological Health Effects of Pesticide Exposure in Agricultural Workers in Al Ain, UAE.

National Research Foundation (NRF) Grant

Drs SM Shah (Co-PI), M Grivna (PI), A Al Suwaidi, LM Al Marzouqi, J Vincenten, Prof FA Zaidan (2013). Prevention of Pediatric Home-related Injuries: a Randomized Controlled Trial.



2013

Institute of Public Health



Standing from left to right:
 Dr Mohamed El Sadig,
 Dr Abderrahim Oulhaj, Dr Michal Grivna, Dr Tom Loney and
 Dr Balazs Adam.
 Seated left to right:
 Dr Fatma Al Maskari, Ms Iffat El-barazi, Dr Iain Blair (Acting Chair),
 Prof Tar-Ching Aw (Interim Dean),
 and Ms Arlene Kaljee.

www.cmhs.uaeu.ac.ae/Departments/Default.asp?d=4 Tel: 7672000 / Fax: 7672033

Department of Internal Medicine



Research Profile

This Department has been highly active in the three fields of Teaching, Research and Clinical Services through 2013.

Below are some of the activities of the Department in 2013:

Clinical service

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

Clerkship & Residency Programs

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

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

Research Interest and collaboration

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

The Department members hold a significant number of new

Associate Professor & Chair:

Dr J Alkaabi

Professors:

Prof J Braun

Prof S Gariballa

Prof E E Kazzam

Associate Professors:

Dr S Al-Suwaidi

Dr O Bakoush

Dr S Denic

Dr I Hassan

Dr A Shehab

Assistant Professors:

Dr A Al Dhanhani

Dr A Al-Fazari

Dr M Al Houqani

Dr S Alkaram

Dr S Al-Shamsi

Dr H Galadari

Dr F Al-Shamsi

Medical Research Specialist II:

Mr J Yasin

Medical Research Assistants:

Ms R Safieldin

Ms Hadia Kader

Research Nurse:

Mr A Al Essa

Administrative Assistant:

Mr H Hassan

Medical Secretary:

Ms Shaikha Alshamsi

Secretary:

Ms Khadija Al Neyadi

and ongoing clinical research grants from the National Research Foundation/UAEU Research Affairs, Sheikh Hamdan Award for Medical Research and Abu Dhabi Executive Council.

Individual Profiles

Professor Salah Gariballa.

Consultant in Acute Medicine and Clinical Nutrition. His research interest is in the role of nutrition in prevention and treatment of disease. He is the lead clinical investigator and member of the technical committee in the study of "Nutrition and Water and their Possible Role in Chronic Diseases" funded by the Abu Dhabi Emirate Executive Council.

Professor Johann Sebastian Braun.

Consultant Neurologist. His research focuses on neuronal damage and neuroprotection. His main interest is the pathophysiology of neuronal injury in stroke and bacterial meningitis. His recent results: bacterial cytolysins induce neuronal damage in neonatal meningitis, cerebral vasospasm and hyperperfusion in eclampsia, ecto-5'-nucleotidase-positive cells in the eye, and how to change stroke therapy strategy to achieve neuroprotection.

Dr Juma Musabab Alkaabi.

Consultant Physician and Endocrinologist. His research is in diabetes, obesity, osteoporosis, dyslipidaemia and thyroid disorders.

Dr Shirina Al Sowaidi.

Consultant Physician in Allergy and Immunology. Research interest in allergy disease epidemiology, asthma, allergic rhinitis and anaphylaxis.

Dr Omran Bakoush.

Consultant Nephrologist. His research interest is in the epidemiology of diabetic and non-diabetic chronic kidney diseases with focus on searching for prognostic markers for the disease outcome. His research group's recent significant finding is in the role of urine excretion of immunoglobulin M as a reliable predictor of cardiovascular complications in people with diabetes.

Dr Srdjan Denic.

Consultant Physician and Hematologist-Oncologist. His research focuses on common inherited blood disorders and human inbreeding. His recent finding is that tribalism contributes to

the burden of β -thalassemia disease more than consanguinity per se. He has produced new reference standards for red cells and neutrophils for Emirati populations. In his studies of kin marriages he has found that such unions increase relative fitness in the presence of high mortality from diseases like malaria. He is proposing a new theory of human consanguinity that is based on sociobiological principles of behavior.

Dr Inaam Bashir.

Consultant Physician, Haematologist and Haematopathologist. Her research interest is in benign haematology and acute and chronic leukaemia.

Dr Abdullah Shehab.

Consultant Physician, Interventional Cardiologist and Clinical Pharmacologist. His research interest is in coronary artery diseases, hypertension, heart failure, clinical pharmacology, and medical education. He is an investigator in following registries: Gulf RACE, Gulf SAFE, Gulf COAST, Gulf CARE and CEPHEUS.

Dr Ali Al Dhanhani.

Consultant Physician and Rheumatologist. Research interest is in epidemiological studies of systemic lupus erythematosus and rheumatoid arthritis specifically on issues of quality of life and work disability.

Dr Ali Al-Fazari.

Consultant Physician and Gastroenterologist. His research interest is gastric carcinogenesis, liver toxicology and inflammation.

Dr Mohammed Al Houqani.

Consultant in Internal, Sleep and Respiratory Medicine. His research interest is on the epidemiology of respiratory and sleep related disorders.

Dr Sultan Al Karam.

Consultant Physician and Interventional Cardiologist. Research interest is in cardiovascular disease and interventional cardiology.

Dr Saif Jaber Al-Shamsi.

Consultant in Acute General (internal) Medicine. Research interest is in persistent hypertension.

Dr Hassan Galadari.

Consultant Physician and Dermatologist. His

research interest is in soft tissue augmentation and botulinum toxin.

Mr J Yasin (Medical Research Specialist II) has been enmeshed in the research activities of various faculty within and outside the Department. His workload increases steadily with time. **Mr A Al Essa** (Research Nurse) is busily occupied with several research projects. **Ms Hadia** and **Ms R Safeldin** recently joined the Department to support cardiovascular, epidemiology and nutrition research respectively.

Ms Khadeja AlNeyadi and **Ms Shaikha Alshamsi** continue to provide secretarial services and **Mr Hisham Hassan** vital administrative services for the Department.

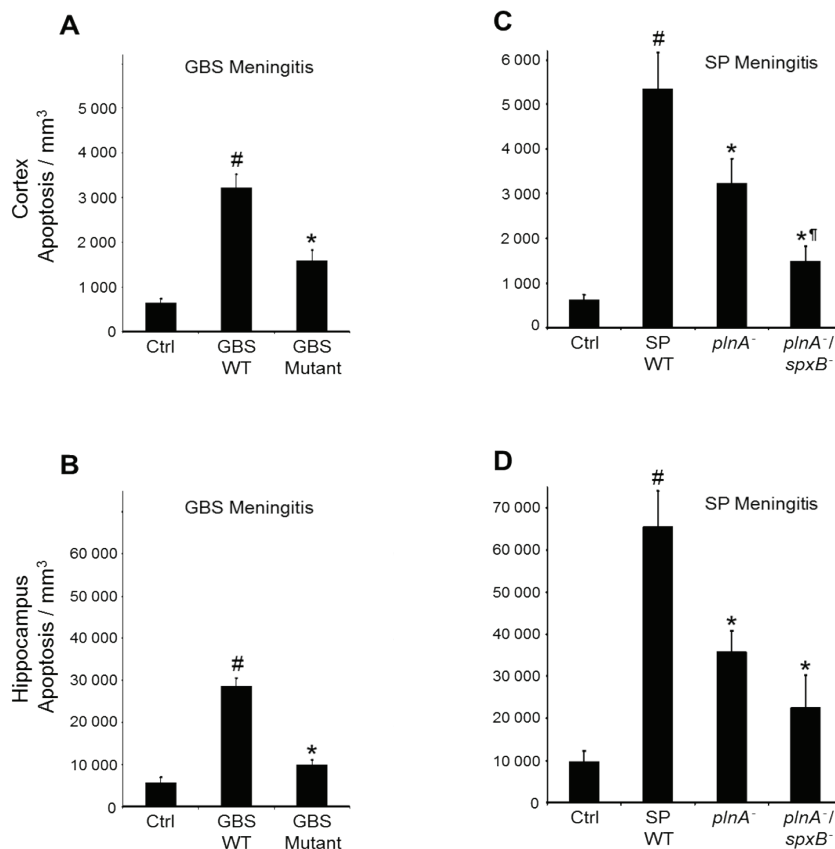
Leadership, management and administrations

Department members serve on a number of local, national and international committees.

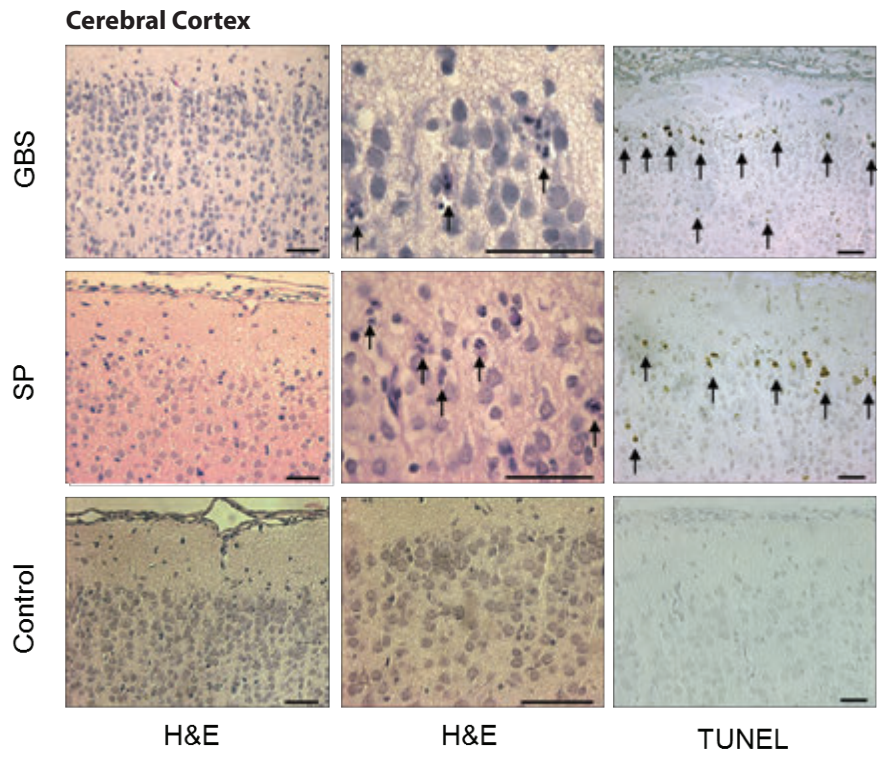
Here below are some examples:

Arab Examination Board
National Continuous Medical Education Committee
National Diabetes Service Planning Group
Sheikh Hamdan Award for Medical Research
World Heart Failure Society.

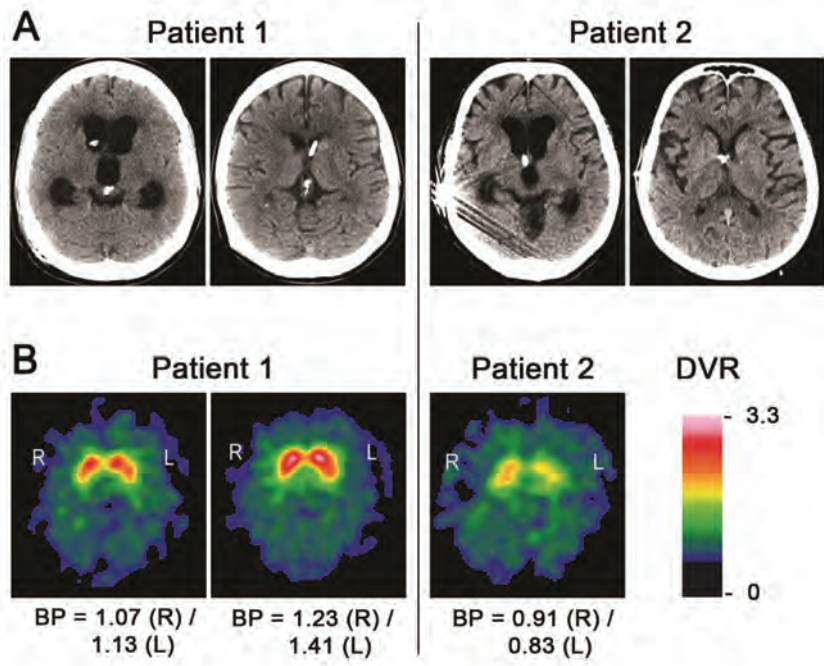
The Department members published 25 papers in peer-reviewed journals, and a significant number of new and ongoing clinical research grants are held by members of the department.



Quantification of cortical (A, C) and hippocampal (B, D) neuronal damage in neonatal rat meningitis induced by wildtype (WT) Group B *Streptococcus* or its mutant deficient in cytolysin (A, B) or by *Streptococcus pneumoniae* or its mutants deficient in pneumolysin (*plnA*⁻) or in pneumolysin and hydrogen peroxide (*plnA*⁻/*spxB*⁻) (C, D). # = $P < 0.001$ vs. control, * = $P < 0.05$ vs. corresponding wild type bacteria, ¶ = $P < 0.02$ vs. *plnA*⁻. Published and provided by Prof. Braun.



Visualization of brain damage in bacterial meningitis by applying H&E and TUNEL staining. Group B Streptococcus (first row) and Streptococcus pneumoniae (second row) induce apoptosis (arrows) in cortical neurons in neonatal rat meningitis. Bars = 50 μ m. Published and provided by Prof. Braun.



Hydrocephalus-induced neuroleptic malignant-like syndrome with reduced dopamine transporters. (A) Brain CT shows dilatation of ventricles and distension of basal ganglia (left images) due to shunt dysfunction. Ventricles of both patients returned to normal size after cerebrospinal fluid drainage and adjusting the valve's opening-pressure of their ventriculoperitoneal shunts (right images). (B) Brain single photon emission computed tomography (SPECT) with the ¹²³I-labelled dopamine transporter (DaT) ligand ioflupane showed reduced striatal DaT. The follow-up in patient 1 showed an increase of striatal DaT availability towards the normal range. Published and provided by Prof. Braun.

Articles in Peer-reviewed Journals

Aouchacra S, Chaaban A, Sajwani S, Bashir M, Beghdash O, Abdulle A. (2013). Encapsulating Peritoneal Sclerosis: A Rare Complication of Peritoneal Dialysis in Al-Ain, United Arab Emirates. *Case Reports in Nephrology and Urology* 3 (1); 22-27.

Adem A, Al Haj M, Benedict S, Yasin J, Nagelkerke N, Nyberg F, Yandle TG, Frampton CM, Lewis LK, Nicholls MG, Kazzam E. (2013). ANP and BNP Responses to Dehydration in the One-Humped Camel and Effects of Blocking the Renin-Angiotensin System. *PLoS One*. 2013; 8(3):e57806.

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Al-Dabbagh B, Shawqi S, Yasin J, Al Essa A, Nagelkerke N, Denic S. (2013). Half of the Emirati Population Has Abnormal Red Cell Parameters: Challenges for Standards and Screening Guidelines. *Hemoglobin*, 2013 Nov 8. [Epub ahead of print]

Alfazari AS, Al-Dabbagh B, Almarzooqi S, Albawardi A, Souid AK. (2013). Bioenergetic study of murine hepatic tissue treated in vitro with atorvastatin. *BMC Pharmacology and Toxicology*, 14(1), 1-9.

Al Haj M, Adem A, Chandranath SI, Benedict S, Pathan JY, Nagelkerke N, Nyberg F, Yandle TG, Frampton CM, Nicholls MG, Kazam Elsadig. (2013). Hormone Responses to Dehydration in the one-Humped Camel and Effects of Blocking the Renin-Angiotensin System. *PLoS One*, 2012;7(5):e37299.

Al Haj M, Kazam Elsadig, N Amir, Nyberg F, Adem A. (2013). Changes in Insulin like Growth Factor-1 and IGF-Binding Protein-3 in Camel Plasma during Dehydration in the Presence and Absence of Losartan. *Comparative Clinical Pathology*, 21:1745-1749.

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Ali BH, Ramkumar A, Madanagopal TT, Waly MI, Tageldin M, Al-Abri S, Fahim M, Yasin J, Nemmar A. (2013). Motor and behavioral changes in mice with cisplatin-induced acute renal failure. *Physiology Res*. 2013 Nov 1. [Epub ahead of print]

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Alkaabi J, Al-Dabbagh B, Saadi H, Gariballa S, Yasin J. (2013). Effect of traditional Arabic coffee consumption on the glycemic index of Khalas dates tested in healthy and diabetic subjects. *Asia Pac J Clin Nutr*. 2013 Dec;22(4):565-73.

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Al-Houqani M. (2013). Sleep apnea & Cardiovascular Diseases. 4th Emirates Cardiac Society Congress, Dubai, UAE.

Al-Houqani M. (2013). Evidence based treatment of sleep apnea. 3rd Family Medicine Conference, Abu Dhabi, UAE.

Al-Houqani M. (2013). Sleep apnea & Driving Risk. 5th Gulf Sleep Meeting, Abu Muscat, Oman.

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RESEARCH GRANTS:

CMHS Research Grants

Dr S Denic (PI)
Effect of monandry vs. polyandry on risk of diabetes assessed by DNA methylation and histone modification in Wistar rats.

Dr O Bakoush (PI)
Experimental study of the changes in the glomerular permeability in obstructive nephropathy in normal and STZ-diabetic rats.

Prof E Kazzam (PI)
Risk factors, and consequences of obstructive sleep apnoea and short sleep duration: Special emphasis on cardiovascular disease and neurohormonal activation

Sheikh Hamdan Award for Medical Sciences

Dr AS Alfazari (PI)
Studies on hepatocytes and

myocytes toxicities of the lipid lowering agents statins.

UAEU National Research Foundation Grants

Dr AS Alfazari (PI)
Role of estrogen in gastric epithelial homeostasis

Dr O Bakoush (PI)
Diagnostic and prognostic value of proteinuria in chronic kidney diseases, clinical and experimental studies.

Prof E Kazzam (PI)
Cardiac Remodelling in Patients with Thalassemia Major: Echocardiographic and Magnetic Resonance Imaging Evaluation in Relation to Neurohormones and Collagen Markers



2013

Internal Medicine



*Back row, left to right:
Mr J Yasin, Dr A Al Dhanhani,
Dr J Alkaabi, Dr S Al-Shamsi,
Dr S Denic, Dr M Al Houqani,
Dr A Al Fazari, Dr A Shehab,
Dr O Bakoush, Mr Abubaker,
Mr M Joynal, Dr S Alkaram.
Front row, left to right:
Ms I Abdur-Rahman,
Dr B Al-Dabbagh, Dr I Hassan,
Dr S Al-Suwaidi, Professor S
Gariballa, Ms S Ogilvie, Ms J Oz,
Ms R John, Professor J Braun,
Dr A M Abdulle.*

www.cmhs.uaeu.ac.ae/Departments/InternalMedicine Tel: 7672000 / Fax: 7672995

Department of Medical Education



Research Profile

Mutairu Ezimokhai's research interests include Simulation, Assessment and Evaluation, Preterm labor and PCOS.

Margaret Elzubeir's main research activities are in the areas of medical student selection, academic performance, small group learning, curriculum development and faculty development.

Sambandam Elango's main research activities are in the area of Simulation in Medical Education, Clinical Education, Assessment of competence and Leadership in Education.

Sami Shaban's research interests are in Health Informatics and electronic curriculum and assessment systems for medical education.

Summary of current research projects:

1. Student and Faculty Perceptions of Faculty Evaluation: Aburawi (Paediatrics), Mclean, Shaban.
2. Effective Use of a Medical School Curriculum Management System Integrated Medical Education: Shaban.
3. Effective Use of an Electronic Assessment System including question management and data banks as well as assessment delivery and analysis: Shaban.
4. Profile of Medical Students' Learning Styles: Ezimokhai, Mirghani (ObGyn), Shaban.
5. Factors that determine Medical Students' Residency Choice: Ezimokhai, Halah Ibrahim (Tawam), Shaban, Elzubeir.
6. Student Self Assessment: Aburawi (Paediatrics), Elzubeir, Shaban, Elango.
7. Students' research activities through the lens of Transformative Learning Theory: Elzubeir, Howarth (Physiology)
8. Developing high quality single best answer multiple choice questions (MCQs): Description of an enhancement-focused strategy. Al Mahmoud, Elzubeir, Branicki (Surgery)
9. YouTube video enhancing senior medical students' learning: Mirghani (ObGyn), Elzubeir
10. Students' access to patients in obstetrics & gynaecology: Mirghani (ObGyn), Elzubeir

Professor & Chair:

Prof Mutairu Ezimokhai

Professor:

Professor Margaret Elzubeir

Professor Sambandam Elango

Associate Professor: **Dr Sami Shaban**

Senior Lectures: **Ms Geraldine Kershaw**

Medical Skills and Communication:

Dr Raney Benner

Mr Mark Campbell

Administrative Assistants:

Ms Hamda Kablani

Mr CP Nair

Ms Lakshmi Ravindranathan

Mr T Usman

IT GROUP

IT Supervisor: **Mr Alsajir Mohammed Basheer**

Microcomputer Specialist

Mr Nadeem Ur Rahman

Ms Latifa Mohammed

MEDIA CENTER

Multimedia Designer: **Ms Ivanna Lizarriturri**

Medical Photographer: **Mr Ashok Prasad**

Reprographic Technician: **Ms. Meera Al Housani**

Audio-visual Specialist: **Mr Musa Hammad**

SKILLS AND TEACHING LABORATORY

Clinical Skills Coordinator:

Ms Meghana Sudhir

Clinical Skills Laboratory Supervisor:

Miss Amira Al Baek

Clinical Skills Laboratory Assistant:

Mr Shanmugam Pandian

Teaching Laboratory Supervisor:

Mr Athiq Wahab

Teaching Laboratory Assistant:

Mr Babuhan Abubakkar

Articles in Peer-reviewed Journals

Hamidi S, Shaban S, Mahate A, Younis M. (2013). Health Care Reform and the Development of Health Insurance Plans: The Case of the Emirate of Abu Dhabi UAE. *J Health Care Finance*. Accepted Dec 2013.

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Society in Europe for Simulation Applied to Medicine, Paris June 12-15, 2013.

Elango S. (2013). Experiences of Global Partnership, National Conference of Health Professions Education, Mumbai, India Sept 24-27, 2013.

Elango S. (2013). Using Simulation in Health Professions Education, 8th International Medical Education Conference, Kuala Lumpur, Malaysia 13-15 March 2013.

Elzubeir M (2013). Writing policies and procedures in postgraduate medical education. Workshop on Quality, Policy Development and Examinations in Postgraduate Medical Education, Kuwait Institute for Medical Specializations (KIMS), Kuwait. 25th - 26th November, 2013.

Elzubeir M (2013). What qualifies as an OSCE?. Workshop on Quality, Policy Development and Examinations in Postgraduate Medical Education. Kuwait Institute for Medical Specializations (KIMS), Kuwait, 25th - 26th November, 2013.

Elzubeir. (2013). Evaluating a Masters in Medical Education: Achieving minimum WFME standards?: 10th Asia Pacific Medical Education Conference (APMEC), Singapore, January 18th to 19th 2013.

Mirghani H, Elzubeir M. (2013). YouTube video enhancing senior medical students' learning: UAE University, Embracing Mobile Learning Conference, November 20th to 21st, 2013. Al Ain.

Shaban S. (2013). A Curriculum Management System for Integrated Medical Education. AMEEMR Conference, Riyadh, Saudi Arabia, Apr 2013.

Shaban S. (2013). An Online Curriculum Management System for Integrated Medical Education: Description and Usage. 10th Asia Pacific Medical Education Conference (APMEC), Singapore, Jan 2013.



2013 Medical Education



Back row, from left to right:
Mr K Pandian, Mr N Ur Rahman, Mr A Basheer, Mr T Usman, Mr B Abubakkar.
Middle row, from left to right:
Mr Ashok Prasad, Ms I Lizarriturri, Mr M Yassin, Dr R Benner, Prof S Elango, Mr CP Nair, Mr Athiq Wahab, Dr S Shaban.
Front row, from left to right: **Ms L Ravindranathan R, Ms M Sudhir, Ms A Baeek, Prof M Ezimokhai, Dr M Al Houqani, Prof M Elzubeir, Ms G Kershaw, Ms H Mansour.**

Department of Medical Microbiology and Immunology



Research Profile

Members of the Department of Medical Microbiology and Immunology have a broad range of research interests in the fields of cellular and molecular immunology, bacteriology and virology. Research activities in the Department are strongly supported by a diverse number of intramural and extramural grants to individual faculty members.

Prof Basel al-Ramadi: The primary research interests in our laboratory are focused on the role of the innate immune system in infection and cancer. The innate immune response is part of an evolutionarily conserved system by which the body recognizes, and responds to, infectious as well as noninfectious insults. Given the multitude of the types of insults to which we are likely to be exposed, the innate immune system had developed multiple pathways to coordinate the host response. Current ongoing projects include the influence of obesity on anti-tumor immunity, targeting of myeloid-derived suppressor cells as a modality in cancer immunotherapy and the regulation of immunological self-tolerance and autoimmune disease by Toll-like receptors (TLRs).

Prof Tahir Rizvi: The research interests of my laboratory are directed towards studying molecular steps involved in the replication of retroviruses such as human, simian, and feline immunodeficiency viruses (HIV, SIV, & FIV), Mason-Pfizer monkey virus (MPMV), and mouse mammary tumor virus (MMTV) with the ultimate goal of developing retroviral vectors for gene therapy. Using these retroviruses the overall goal of our research efforts is to gain better understanding of gRNA export, dimerization, and packaging mechanisms and their interplay during retroviral replication. Specifically, our current ongoing studies are focused on gaining enhanced understanding of how structural motifs (regardless of the primary sequence) facilitate retroviral gRNA export, dimerization as well as packaging and/or cross/co-packaging into the nascent virus particles. These studies are being accomplished by employing a combination of in vivo (genetic

Professor & Chair:

Prof Basel al-Ramadi

Professor:

Prof Tibor Pal

Prof Tahir Rizvi

Associate Professor:

Dr Gulfraz Khan

Assistant Professor:

Dr Mariam Al Shamsi

Dr Agnes Sonnevend

Dr Ahmed Al Qahtani

Dr Eyad Elkord

Medical Research Specialist:

Ms Akela Al-Ghazawi

Mr Mohammed Al-Haj

Ms Lizna M Ali

Mr Yasser Mohamed

Ms Pretty Philip

Mr Allen Shahin

Medical Research Technician:

Ms Ghada Bashir

Medical Secretary:

Ms Habiba AlBlooshi

Office Assistant:

Mr Mohammed Hashiq

complementation assays), in vitro (biochemical probing/mapping-SHAPE), and structural prediction/phylogenetic approaches to test our proposed hypotheses. Over the years, Prof. Rizvi's laboratory has been able to successfully compete for both intramural and extramural grant support for his work on retroviruses. Studies on retroviral RNA packaging and dimerization have been published in journals of international repute.

Prof Tibor Pal: main research interest is the investigations of the molecular epidemiology of multi drug resistant Gram negative pathogens and of the genetic background of their antibiotic resistance. We are focusing particularly on the strains producing carbapenemases, i.e. an emerging threat in the UAE. Also, the relationship between drug resistance and the presence

of certain virulence genes and cell wall elements are being studied. We cooperate with colleagues in Paris, Edinburgh, Vienna.

Dr Gulfaraz Khan: Our laboratory continues to work on the biology of Epstein-Barr virus (EBV) and its role in the pathogenesis of EBV associated diseases, in particular, malignancies and autoimmune disorders. Our current efforts are focused on three broad areas:

- 1) Establishing an in vitro and in vivo model for EBV
- 2) Investigating the role of EBV latent genes, in particular EBERs, in cell transformation and oncogenesis
- 3) Role of EBV in the pathogenesis of multiple sclerosis

We recently proposed a mechanism for the action and excretion of EBV-encoded EBERs (Fig.1).

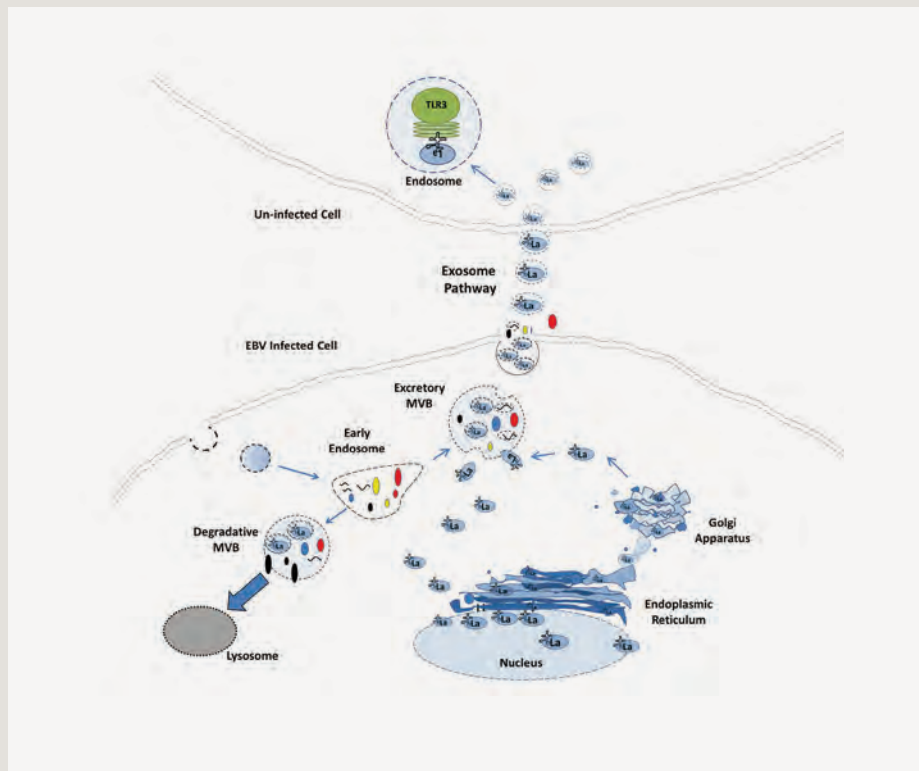


Figure 1. Proposed mechanism of EBER excretion. Both EBERs and La protein have consistently been shown to be present in the nucleus. Moreover, both have also been shown to be released from infected cells. We propose that the excretion of EBERs is mediated by their binding to La protein. This binding takes place in the nucleus and from here, the complex may leave, either via the endoplasmic reticulum and Golgi network or released out of the nucleus through the nuclear pores. The cytoplasmic EBER-La complex is taken up by multivesicular bodies (MVBs) leading to the formation of intraluminal vesicles/exosomes. The fusion of MVBs with the plasma membrane, results in the excretion of exosomes. Exosomes could serve both as a form of protection for EBERs, and also as a vehicle for their transport to neighboring cells, where they could trigger signaling via binding to Toll-like 3 receptors (TLR-3). (From: Ahmed W & Khan G, Rev Med Virol. 2014; 4:3-14 (online: 2013 Sep 1 2013).

One of our current project aims to test this mechanism.

Dr Mariam Al Shamsi: Main research activity is in the area of inflammation and autoimmunity. Currently I am investigating the changes in cellular bioenergetics in cells and tissues during clinical course of experimental autoimmune encephalomyelitis, rodent models of multiple sclerosis. Our experimental models are

DA (Dark Agouti, susceptible) and OA (Oxford Albino, resistant strain). Representative data are presented in Figures 2-3.

Following the previous finding that confirmed preserved spinal tissue respiration and ATP content throughout the course of EAE, analysis of caspase-3 revealed correlation with the intensity of the clinical disease. However this did not lead to any impairment of mitochondrial function as shown below.

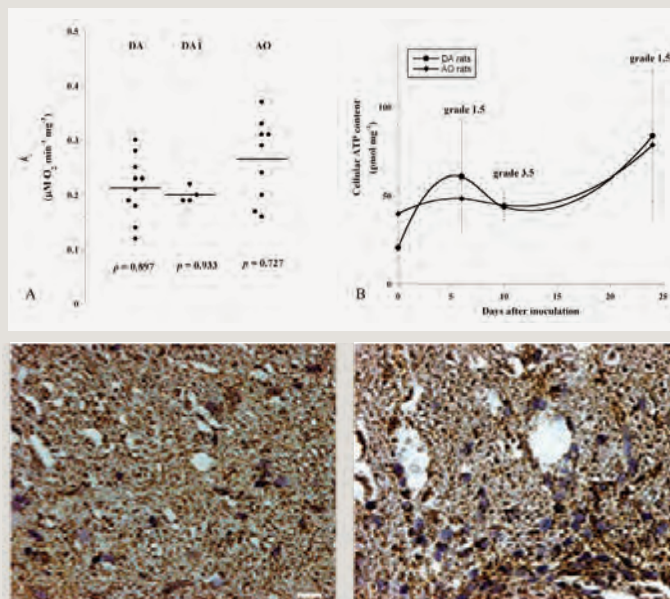


Figure 1. Spinal cord respiration in immunized and non-immunized DA and AO rats. Representative runs of O₂ consumption by spinal cord tissue from non-immunized (DA) and immunized and disease (DAi) and immunized but resistant AO rats (A). Note that there are differences in oxygen consumption in different groups of rats. Note the similar immunoreactivity to mitochondria (anti- MTCO1) in sections of the spinal cords of AO and DA rats in spite of the high level of cellular infiltration in the latter. Bar=4 μm

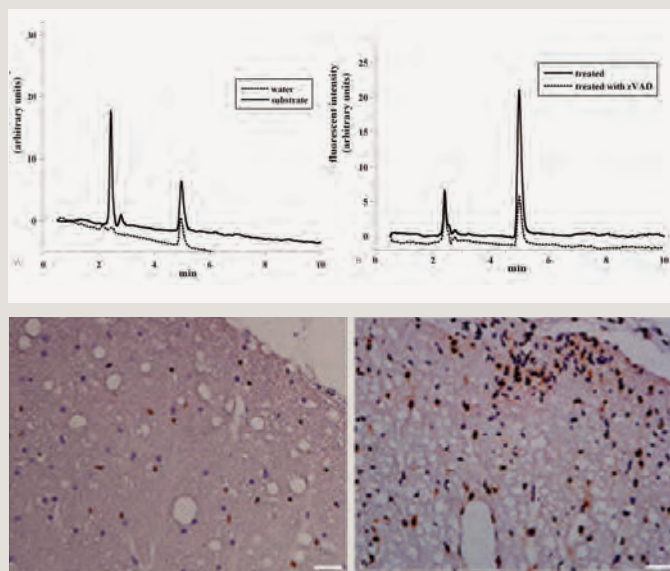


Figure 2. Representative runs of spinal tissue caspase-3 activity in DA rats (B) vs runs of dH₂O and substrate injection showing that caspase 3 activity rises at height of disease but returns after recovery to levels similar to that in non-immunized DA rats. Note in D the increased number of caspase-3 immunoreactive cells in sections of spinal cords of diseased DA rats compared to that in immunized but resistant AO rats. Bar=20 μm

Dr Agnes Sonnevend-Pal: Main research activities are in the area of molecular epidemiology and antibiotic sensitivity of human pathogenic bacteria. She studies polyresistant pathogenic bacteria like extended spectrum beta lactamase (ESBL) and carbapenemase producer *Escherichia* and other Enterobacteriaceae, methicillin resistant *Staphylococcus aureus* (MRSA), which are the major threat in the hospitals in the UAE and becoming more and more prevalent in the community, as well. Also, in cooperation with Prof. T Pal, she investigates the molecular epidemiology of *Acinetobacter baumannii* in the UAE. Beyond that she cooperates extensively with Prof. JM Conlon studying the effect of various peptides on different antibiotic resistant microorganisms.

Dr Eyad Elkord: Main research interests are in the area of Cancer Immunology and Immunotherapy. He has special interest in the role and function of immunosuppressive cells (T regulatory cells and myeloid-derived suppressor cells) in cancer. Recent evidences show that anti-tumor immunity and cancer immunotherapy are negatively impacted by effects of immunosuppressive

cells. We showed that T regulatory cells (Tregs) are expanded in peripheral blood and tumor microenvironment of cancer patients, which correlates with poor prognosis and reduced survival. Treg infiltration of tumors is correlated with a lack of some patients' responsiveness to therapy. These observations suggest that Tregs are implicated in the immunopathology of cancer and their specific targeting may improve the efficacy of immunotherapeutic modalities. Furthermore, recent observations indicate that Tregs could be phenotypically and functionally different in cancer settings. However, molecules contributing to their enhanced immunosuppressive activity are yet to be elucidated. We have recently found that the majority of peripheral and tumor-infiltrating FoxP3+ Tregs expresses Helios, an Ikaros family transcription factor. Interestingly, FoxP3+Helios+ Treg subset is significantly higher in cancer patients, compared to healthy individuals. Neuropilin 1 seems to be a novel Treg marker with wide-ranging interactions within the immune system, and could be a promising target in cancer immunotherapy (See Figure 4).

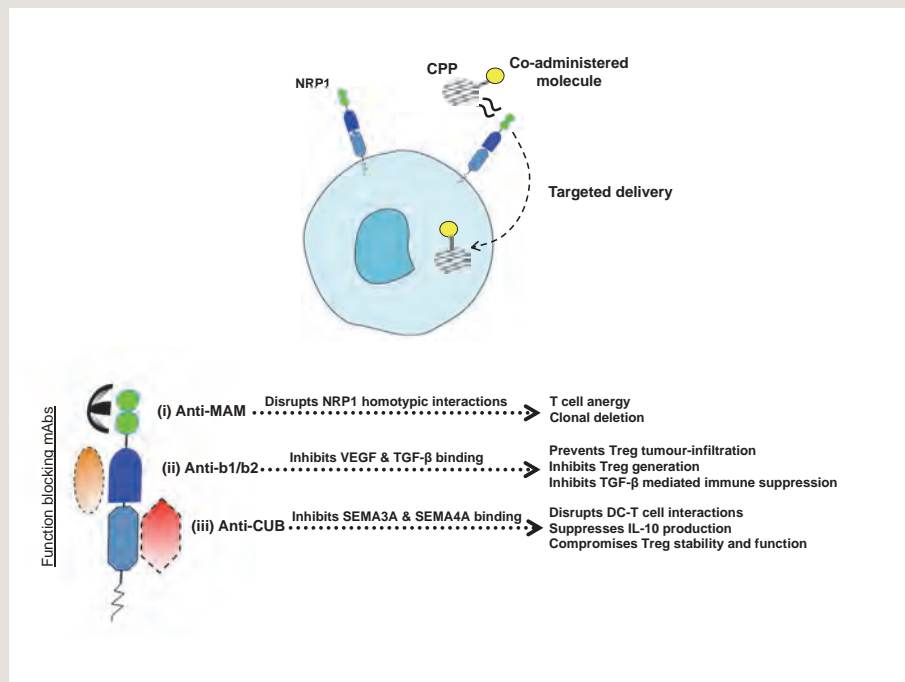


Figure 4: Neuropilin 1 as a novel target in cancer immunotherapy. Monoclonal antibodies directed at NRP1's extracellular domains allow blockade of specific functions and interactions of NRP1 while cell-penetrating peptides (CPPs) can be internalised through, along with co-administered molecules, into NRP1-expressing cells. Being constitutively expressed on tumour vasculature, plasmacytoid dendritic cells and tumour-associated Tregs, NRP1 allows simultaneous targeting of different tissue and cells involved in tumour immunity, offering an exciting new option for immunotherapies.

Myeloid-derived suppressor cells (MDSCs) are heterogeneous immature myeloid cells that negatively regulate the immune responses during tumour progression, inflammation, and infection. We reported significant increases in circulating and tumor-infiltrating granulocytic (Lin-HLA-DR-CD33+CD11b+CD15) MDSCs in pancreatic cancer patients, when compared with healthy donors and patients with benign

pancreatic diseases (Figure 5 A & B). These findings provide a first characterization of the phenotype of different subsets of peripheral and local MDSCs in pancreatic cancer patients and suggest that the frequency and contribution of these cells are predominantly granulocytic. Future large validation studies may help the development of new immunotherapeutic strategies to inhibit and eliminate MDSCs in PC.

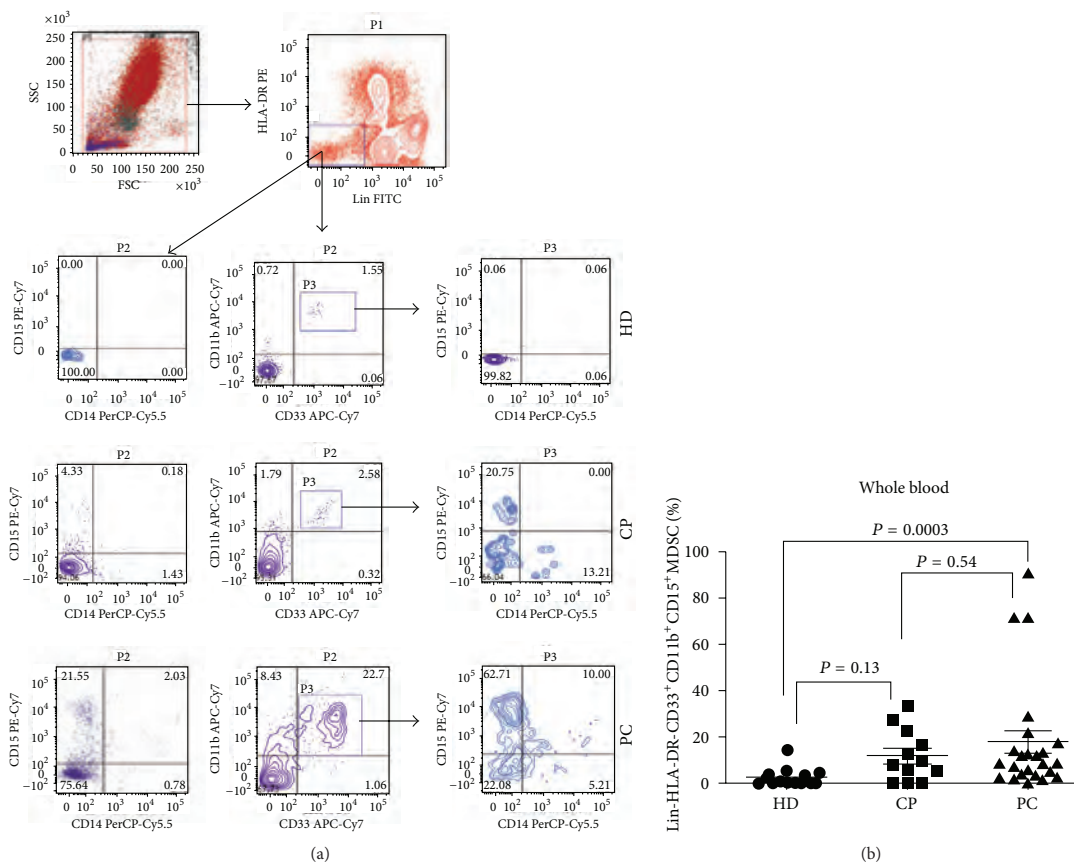


Figure 5: Levels of circulating MDSCs in patients with pancreatic cancer, compared to chronic pancreatitis patients and healthy donors. (A): Flow cytometric evaluation of Lin, HLA-DR, CD33, CD11b, CD15 and CD14 in whole blood. An example of representative dot plots is shown for each study sub-group. (B) Scatter plot of the percentage of Lin-HLA-DR-CD33+CD11b+CD15+ in the blood of the study groups. Bar represents median in each group. HD: healthy donor; CP: chronic pancreatitis; PC: pancreatic cancer.

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Al Shamsi M, Shahin A, Iwakura Y, Lukic M, and Mensah-Brown EPK. (2013) Pam3CSK4 enhanced beta cell loss and diabetogenesis: The roles of IFN-gamma and IL-17. *Clinical Immunol*, 149:86-96.

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Emirates. *Microb Drug Resist*, Aug 30. [Epub ahead of print]

Espinal P, Poirel L, Carmeli Y, Kaase M, Pál T, Nordmann P, Vila J. (2013). Spread of NDM-2-producing *Acinetobacter baumannii* in the Middle East, 68:1928-30.

Fernandez-Cabezudo MJ, El-Kharrag R, Torab F, Bashir G, George JA, El-Taji H, al-Ramadi BK. (2013). Intravenous administration of Manuka honey inhibits tumor growth and improves host survival when used in combination with chemotherapy in a melanoma mouse model. *PLoS ONE*, 2013;8(2):e55993. [Epub ahead of print]

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Books, Chapters, Reviews and Editorials

Elkord E. (2013). Thymus-derived, peripherally-derived and in vitro-induced T regulatory cells. *Frontiers in Immunology*. eBook.

Elkord E. (2013). T regulatory cells in cancer. (2013) *Frontiers in Immunology*. eBook.



Published Abstracts, Letters and Correspondence

al-Ramadi B, Issac J, El-Ojali S, Mohamed Y, Al-Ketbi M, Fernandez-Cabezudo MJ. (2013). Differential regulation of immune responses in MyD88-deficient mice by cytokine-expressing *Salmonella typhimurium*. *J Immunol*, 2013, 190.

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Proceedings, Conferences, Invited Lectures, Web Sites and Others

Elkord E. (2013). T regulatory cells in cancer. 15th International Congress of Immunology, Milan, Italy.

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Elkord E. (2013). Cancer Immunotherapy: Advances and Therapeutic Potentials. Qatar Biomedical Research Institute, Doha, Qatar.

Elkord E. (2013). CTLA4 inhibition as a therapeutic anti-cancer approach. British Association for Cancer Research 2013 meeting on Tumour Microenvironment, Basic Science to Novel Therapies, Bristol, UK.

Issac, JM, Mohammed Y, Nasser HT, Rabah M, Fernandez-Cabezudo MJ, Conca W, al-Ramadi BK. (2013). Regulation of autoimmune responses by the innate immune system in response to bacterial infections. 15th International Immunology Congress, Milan, Italy.

Khaled YS, Ammori BJ, Elkord E. (2013). Increased levels of myeloid derived suppressor cells in pancreatic adenocarcinoma patients. British Society for Immunology Congress, Liverpool, UK.

Pál T, Al Zarouni N, Darwish D, Szijártó V, Nagy G, Sonnevend A. (2013). Increased frequency of the R4 lipopolysaccharide core type among extended-spectrum beta-lactamases (ESBL)-producing bloodstream *Escherichia coli* isolates is associated with international clones P1216 – 23rd European Congress of Clinical Microbiology and Infectious Diseases, Berlin, Germany.

Pál T. (2013). Screening strategies for nosocomial MDR pathogens. 9th Middle East Health Care Associated Infections Conference, Abu Dhabi. Sonnevend A, A. Al-Baloushi,

A. Ghazawi, R. Hashmey, M. Hamadeh, M. Al Haj, Pál T. (2013). Co-existence of blaOXA-162 and blaNDM-1 in a *Klebsiella pneumoniae* isolate from the United Arab Emirates R2640 - 23rd European Congress of Clinical Microbiology and Infectious Diseases, Berlin, Germany.

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RESEARCH GRANTS

CMHS Research Grants

Dr A Sonnevend [PI]
Virulence profile of carbapenem resistant *Klebsiella pneumoniae* isolated on the Arabian Peninsula.

Prof B al-Ramadi [PI], Dr. M. Fernandez-Cabezudo
Mechanisms of Manuka honey-induced death of human breast cancer cells.

Dr E Elkord [PI]
Investigation of the induction of Myeloid-Derived Suppressor Cells by tumour cell lines.

Dr G Khan [PI]
Functional analysis of Epstein-Barr virus encoded small RNAs: Creation of EBER-1 mutants

Dr M Al Shamsi [PI]
Experimental allergic encephalitis (EAE) of rats-role of mitochondrial

dysfunction in demyelination and axonal loss.

Prof TA Rizvi [PI]
Role of long-range interactions (LRIs) involving U5 and Gag sequences in Mason-Pfizer monkey virus (MPMV) genomic RNA packaging.

Prof T Pal [PI]
Could *Acinetobacter baumannii* strains of animal origin be responsible for human infections? - A molecular fingerprinting study.

Sheikh Hamdan Award for Medical Sciences

Prof B al-Ramadi [PI], Dr M Fernandez-Cabezudo
Obesity as a potentiating factor in tumor development: Implications for cancer immunotherapy.

Dr M Fernandez-Cabezudo [PI], Prof B al-Ramadi.
Neuro-immune modulation of inflammatory diseases: potential role in the amelioration of diabetes.

Terry Fox Fund for Cancer Research

Prof B al-Ramadi, Dr M Fernandez-Cabezudo
Inactivation of myeloid-derived suppressor cells as a novel target for enhancing cancer immunotherapy.

Dr M Fernandez-Cabezudo [PI], Prof B al-Ramadi.
Novel resistance biomarkers in human breast cancer.

Prof TA Rizvi
Co-packaging and Recombination among Genetically Distinct Retroviruses: Implications for the Development of Retroviral Vectors for Gene Therapy.

National Research Foundation / UAE University Grant

Dr A. Sonnevend [PI]
The genetic environment of NDM gene in Enterobacteriaceae: its effect on the gene expression and on the spread of resistance, UAEU-NRF Research Grant 2013-14

Prof B al-Ramadi [PI], Dr M Fernandez-Cabezudo
Obesity as a potentiating factor in tumor development: Implications for cancer immunotherapy.

Dr M Fernandez-Cabezudo [PI], Prof B al-Ramadi.
Neuro-immune modulation of inflammatory diseases: potential role in the amelioration of diabetes.

Dr E Elkord [PI]
Investigations into the role and function of immunosuppressive cells in colorectal and breast cancers.

Prof I Zuburtikudis, Dr E Elkord [Co-PI]
Optimized chitosan-based biopolymer nanofibrous materials for anti-tumor activity.

Prof TA Rizvi
Role of structural elements in retroviral genomic RNA packaging and dimerization: Implications for developing new generation vectors for gene therapy.

Others

Dr E Elkord [PI]
Role of immunosuppressive cells in pancreatic and colorectal cancers.

North Manchester Health Care Trust.

Prof T Pal [PI]
Molecular basis of ertapenem resistance among Enterobacteriaceae isolated in the Arabian Peninsula, MSD grant.



2013

Medical Microbiology & Immunology



Standing left to right:
Mr Hashiq, Mr M Al-Haj, Dr E Elkord,
Dr G Khan, Prof T Rizvi, Prof T Pal.
Seated left to right:
Mr A Shahin, Ms L Ali, Dr M Al
Shamsi, Prof B al-Ramadi, Dr A
Sonnevend-Pal, Ms A Al-Ghazawi,
Ms P Philip.

Department of Obstetrics & Gynaecology



Research Profile

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

Obstetrics:

Fetal Medicine

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

- Fetal growth behavior during maternal fasting.
- Fetal growth and pregnancy outcome in GDM.
- Fetal abnormalities
- Placenta perfusion studies
- Medical education: learning style and acquisition of clinical skills

Dr Shamsa Al Awar major area of research of interest is

- Fetal abnormality.
- Maternal health.
- Placental perfusion.
- General women and community health initiatives

Gynaecology:

Dr Hassan Mohammed Elbiss major area of research of interest is

- Epidemiology of Pelvic Floor Dysfunction
- Management of Pelvic Floor Dysfunction
- Gynaecological laparoscopic surgery
- Gynae-oncology

Dr Osman Ortashi main area of interest is

- Gynecology and gynecological cancers. His research is focusing on cervical cancer prevention and Human Papilloma Virus related cancers and diseases.
- Knowledge, attitude & practice towards the Human Papillomavirus infection & vaccine.
- Cervical screening

Associate Professor & Chair:

Dr. Hisham Mirghani

Professor:

Prof Mutairu Ezimokhai

Assistant Professor:

Dr. Hassan Elbiss

Assistant Professor:

Dr. Osman Ortashi

Dr. Shamsa Al Awar

Medical Research Specialist II:

Dr. Nawal Osman

Medical Research Assistant:

Hina Raheel

Research Nurse:

Flora D. Lone

Medical Secretary:

Clarina G. Garcia

Summary of research activities 2013

Ortashi O, Raheel H, Shalal M, Osman N.
Awareness and knowledge about human papillomavirus infection and vaccination among women

Cervical cancer is the second commonest female cancer worldwide. The 50-55 cases of cervical cancer are reported annually in the UAE. There is a scarcity of data from Middle Eastern region regarding knowledge and attitude of women towards HPV infection, cervical cancer prevention and HPV vaccine. The aim of our study was to assess the knowledge of women regarding HPV infection and vaccine in UAE.

We conducted a cross-sectional survey of 640 women aged 18-50 years was conducted in Al-Ain district in UAE using convenience sampling. Women with previous diagnosis of cervical cancer, non-residents of UAE, younger than 18 or older than 50 years of age and those unable to speak Arabic or English were excluded from the study. Logistic regression analysis was performed to assess the association of HPV knowledge with independent factors like age, education.

Our study showed that only 29% of our sampled women have ever heard of HPV infection. Only 15.3% women recognized it as STI. Only about 22% women have also heard of the HPV vaccine. Three quarter of the women in our study thought that cervical cancer can be prevented. About 28% recognized vaccine as a preventive measure against cervical cancer. Age (AOR 1.049, 95%CI 1.02-1.08) and husband's level of education were found to be significant (p value 0.015) after adjusting for women's age.

We concluded from this study that the knowledge of HPV infection and vaccine is low in the UAE. Few women recognized HPV as sexually transmitted infection. Increasing age and husband's education are associated with better knowledge of HPV infection

Ortashi O, Raheel H, Khamis J.
Acceptability of human papillomavirus vaccination among male university students in the United Arab Emirates.

Our aim in this study was to assess the knowledge about and acceptability of human papillomavirus (HPV) vaccination among male university students in the United Arab Emirates (UAE). We approached 356 male university stu-

dents from the UAE and asked them to fill out a 12-item self-administered questionnaire. The knowledge of HPV was low among the university students who participated (32%). Less than half of the students (46%) indicated they would accept HPV vaccination, and around 30% were unsure of their decision. Safety (68%), protection of their female partner (65%) and doctor's recommendation (64%) were rated as the factors most likely to increase the uptake of HPV vaccination among participating students. The factors rated most likely to stop students from using the vaccine were fear of side effects (85%), absence of clear benefits (38%) and objections from a religious authority (25%). Marital status and sexual activity were associated with greater knowledge of HPV but not with greater acceptance of vaccination among university students in the UAE. Overall acceptability of and knowledge about HPV infection and vaccination were low in a sample of male university students in the UAE. Marital status and sexual activity are associated with greater knowledge of HPV infection but have no effect on the acceptability of HPV vaccination.

Ortashi O
Gynecological cancer services in Arab countries: present scenario, problems and suggested solutions.

Gynecological malignancies account for 9% of all female cancers worldwide. In the Arab countries Breast cancer is the leading cancer in women followed by cervical cancer. Ovarian cancer ranks as fourth leading cancer in women. There are huge differences in the available resources among Arab countries. However the challenges facing the provision of gynecological cancers services shared similarities like the cultural and religious background. Most of the gynecological cancers are diagnosed at a later stage in Arab countries due to the lack of reproductive health awareness especially among older women combined with the cultural stigma of seeking medical advice for gynecological symptoms. This article discusses the current situation of gynecological cancer services in Arab countries and suggests some practical solutions.

Elbiss Hassan M, Osman Nawal, Hammad Fayez.
 Social impact and healthcare-seeking behavior among women with urinary incontinence in the United Arab Emirates.

Our aim in this study was to determine the prevalence and social impact of urinary incontinence (UI) and healthcare-seeking behaviors among women in the United Arab Emirates (UAE). This study was conducted of 429 women who attended family development foundation centers in Al Ain, UAE, between January 1, 2010, and January 31, 2011. Data on socio-demographics, obstetric and medical history, and factors related to UI were obtained using a questionnaire. The study showed that the prevalence of UI was 42.2% (mean age, 37.8 years). Aspects of daily life (praying, social activities, physical activities, or sexual relationship) were disrupted by UI among 78.0% of the women, with severe effects reported by 8.8%. Independent risk factors for UI were education level, history of "dragging" genital lump, and constipation. In all, 50.5% of the affected women did not seek medical advice, stating the following reasons: hoped for spontaneous resolution of UI (61.9%); embarrassed to visit a male or female clinician (35.9%); believed that UI was a normal occurrence among women (31.5%); embarrassed to visit a male clinician (29.3%); and unaware that treatment was available (23.9%). Although UI was prevalent in the UAE and affected quality of life, less than half of all women with this condition sought medical advice.

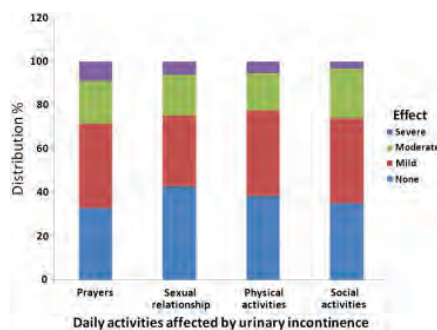


Figure: The effect of urinary incontinence on the daily activities and relationships of women with incontinence (n = 182).

Elbiss Hassan M, George S, Sidky I. Gynaecological laparoscopy courses in the United Arab Emirates.

Laparoscopic surgery is important for gynaecological practice and became the method of choice for many gynaecological procedures having advantages over open surgery. In this study we reported a modified teaching

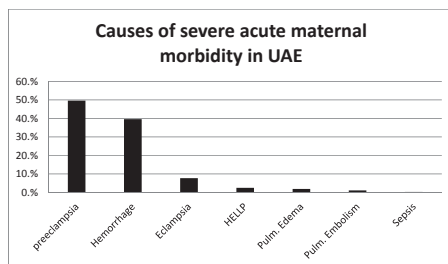
methods, and evaluation of the gynaecological laparoscopy courses in United Arab Emirates. Fifty five participants attended four 3-full day comprehensive hands-on gynaecological laparoscopic skills courses. Non-expensive dry/wet models have been developed for teaching. All participants were evaluated at the end of the course through MCQs and practical laparoscopic exercises. All participants filled out a questionnaire reflecting their opinion on various aspects of the course at its completion. Of the 55 participants, fourteen participants had no laparoscopic experience, 35 had experience at level I and six had experience at level II. There was a statistically significant difference of the MCQ mark between the three levels of experience ($p = 0.05$, Kruskal Wallis test) but not for the practical part, $p = 0.9$, Kruskal Wallis test). The courses were highly valued having an overall average rating of 3.8 out of 4.

Bekdache GN1, Begam MA, Chedid F, Al-Gazali L, Mirghani H. Fibrochondrogenesis: Prenatal diagnosis and outcome.

To determine the pregnancy outcome and the prenatal sonographic features of fibrochondrogenesis we reviewed all cases managed at the fetal unit at Tawam Hospital in the past five years, and reviewed the literature. Four cases diagnosed at the fetal unit were included in the study. 16 cases were identified through a review of English language literature. Prenatal diagnosis of fibrochondrogenesis was made in 4/20 (20%). Six (30%) patients opted for TOP. Thirteen cases delivered at term. Four (30.8%) had a Cesarean section. Four neonates (30.7%) were stillborn and seven (53.8%) neonates died within three months. Two infants survived beyond 3 years of age. Both had severe global developmental delay. Molecular study of surviving children revealed two null homozygous mutations in COL11A1 [c.4084C>T (p.R1362X) and c.3708+c.437T>G]. The prenatal diagnosis of fibrochondrogenesis is feasible. Fibrochondrogenesis is a lethal disease. The rare survivors will suffer from severe physical and neurological impairment.

Ghazal-Aswad S1, Badrinath P, Sidky I, Safi TH, Gargash H, Abdul-Razak Y, Mirghani H.
Severe acute maternal morbidity in a high-income developing multiethnic country.

With declining maternal mortality, the study of severe acute maternal morbidity (SAMM) provides an opportunity to measure the quality of maternal care and to identify ways to improve it. The objective was to study the epidemiology of severe acute maternal morbidity in a high income, rapidly developing, multiethnic country in the Middle East, and to determine the role of ethnicity in maternal morbidity. We included all births occurring in maternal units with more than 500 births a year over a 6 year period in Abu Dhabi emirate, the largest province of the United Arab Emirates. Data on SAMM was collected retrospectively for the first 3 years and prospectively for the later 3 years. A clinical criteria based approach was used to define SAMM. Over the 6 year period there were 122,705 deliveries, and a total of 926 cases of SAMM were identified. The SAMM to births ratio was 7.5/1,000 deliveries. The leading cause of maternal morbidity was hypertensive disorders (59.5 %) followed by hemorrhage (39.6 %). There were clear ethnic differences. Preeclampsia was significantly higher in women from the Indian sub-continent and hemorrhage was more prevalent in UAE women. We have shown that it is possible to use a clinical criteria based approach to study the epidemiology of SAMM. The leading contributors to SAMM were hypertensive disorders and hemorrhage with clear ethnic links supporting earlier reports of a complex interaction between ethnicity, socioeconomic status and maternal health



PLACENTA LABORATORY

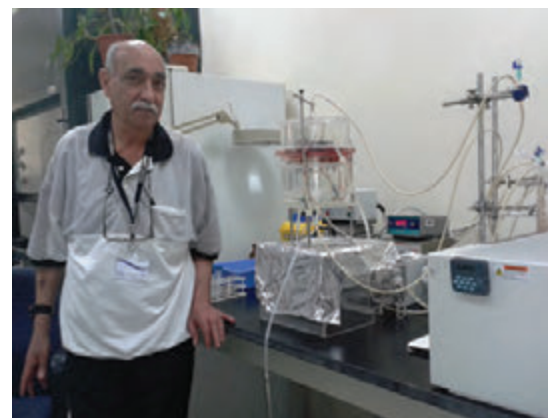
The Ex-Vivo Human Placenta Perfusion Model Visit of International research Collaborator (Dr. Antoine Malek).

The Department completed two studies using the Ex-Vivo Human Placenta Perfusion Model. The study looks at “Transplacental Transfer of

2- Naphthol in Human Placenta” by Hisham Mirghani, Nawal Osman, Subramanian Dhannasekaran, Hassan M Elbiss, in collaboration with Dr. Antoine Malek from Laboratory of Human Placental Research, Department of Obstetrics, University Hospital Zurich, Switzerland.

Naphthol is a carcinogenic and embryotoxic chemical that is widely found in our environment. We aim to determine the transfer of 2-naphthol (2-NPH) in full-term human placental tissues.

A total of six placentas were studied. The ex-vivo dual closed-loop human placental cotyledon perfusion model was used. 2-NPH was added to the perfusate in the maternal compartment. Samples were obtained from the maternal and fetal up to 360 minutes measuring. The study showed that all un-perfused placental tissue samples contained NPH with a mean level of 7.98 (± 1.73) ug/g compared to a mean of 15.58 (± 4.53) ug/g after 360 minutes perfusion. The drop in 2-NPH concentration in the maternal compartment was rapid. It dropped from 5.54 ug/g in the first 15 minutes and 13.8 ug/g in 360 minutes. However, it increased in the fetal side from 0.65 ug/g in the initial 15 minutes to 1.5 ug/g in 360 minutes. The transfer rate of NPH was much lower than that of antipyrine. Our study indicates significant NPH environmental exposure during pregnancy. NPH diffuses freely across the placenta. However, its method of transfer is different from that of antipyrine. Our study suggests that 2-NPH has the ability to rapidly cross the placenta from the maternal to the fetal compartment within 15 minutes. The placenta seems to play a role in limiting the passage of 2-NPH in the fetal compartment.



Dr. Antoine Malek

Articles in Peer-reviewed Journals

Bekdache GN1, Begam MA, Chedid F, Al-Gazali L, Mirghani H. (2013). Fibrochondrogenesis: Prenatal diagnosis and outcome. *J Obstet Gynaecol*, 33(7):663-8.

Elbiss HM, Raheel H, George S, et al. (2013). Clinical effects of gynecologic laparoscopy courses in the United Arab Emirates. *International Journal of Gynecology & Obstetrics*, 124:1:42-44.

Elbiss HM, Osman N, Hammad FT. (2013). Social impact and health-care-seeking behavior among women with urinary incontinence in the United Arab Emirates. *International Journal of Gynecology & Obstetrics*, 122:2:136-139.

Elbiss HM, George S, Sidky I, et al. (2013). Gynaecological laparoscopy courses in the United Arab Emirates. *African Health Sciences*, 13:2:393-401.

Ghazal-Aswad S1, Badrinath P, Sidky I, Safi TH, Gargash H, Abdul-Razak Y, Mirghani H. (2013). Severe acute maternal morbidity in a high-income developing multiethnic country. *Matern Child Health J*, 17(3):399-404.

Ortashi O, Raheel H, Shalal M, Osman N. (2013). Awareness and knowledge about human papillomavirus infection and vaccination among women in UAE. *Asian Pac J Cancer Prev*, 14(10):6077-80.

Ortashi O, Virdee J, Hassan R, Mutrynowski T, Abu-Zidan F. (2013). The practice of defensive medicine among hospital doctors in the United Kingdom. *BMC Med Ethics*, 29;14:42.

Ortashi O, Raheel H, Khamis J. (2013). Acceptability of human papillomavirus vaccination among male university students in the United Arab Emirates. *Vaccine*, 31(44):5141-4.

Ortashi O. (2013). Gynecological cancer services in Arab countries: present scenario, problems and suggested solutions. *Asian Pac J Cancer Prev*, 14(3):2147-50.

Proceedings, Conferences, Invited Lectures, Web Sites and Others

Al Awar S. (2013). Fatima college 'Tawteen' initiative of medical professional jobs- open day -, June 2013, Fatima College, Abu Dhabi.

Al Awar S. (2013). First oncology conference - cancer & fertility- female presentation, 1st International Oncology Conference, Abu Dhabi.

Elbiss H. (2013). Female pelvic organ prolapse in the community: United Arab Emirates prospective. *The Obstetrics & Gynecology Arab Health, Dubai, UAE.*

Elbiss H. (2013). Gynaecological laparoscopy courses in the United Arab Emirates, 1st Annual MESGE Congress in Conjunction with the Turkish Society of Gynecological Endoscopy, Antalya, Turkey.

Elbiss H. (2013). Gynaecological laparoscopy courses in United Arab Emirates- Follow up questionnaire, 1st Annual MESGE Congress in Conjunction with the Turkish Society of Gynecological Endoscopy, Antalya, Turkey.

Elbiss H. (2013). Recent Advances in Management of Female Urinary Incontinence. *The Obstetrics & Gynecology Arab Health, Dubai, UAE.*

Mirghani H. (2013). Assessment of fetal cardiac anatomy. *The 1st Pediatric Cardiology Conference. Dubai, UAE.*

Mirghani H. (2013). Outcome of intrauterine growth restriction. *The second Congress of African Association of Perinatal Medicine. Khartoum, Sudan.*

Mirghani H. (2013). Screening for preeclampsia. *The Obstetrics & Gynecology Arab Health, Dubai, UAE.*

Mirghani H. (2013). Youtube as a learning tool. *Embracing Mobile*

Learning Conference. United Arab Emirates University, Al Ain, UAE.

Ortashi O. (2013). Improving the outcome of gynecological cancers in low resource settings. *Sudanese Obstetrics and Gynecology Scientific meeting, Khartoum, Sudan.*

Ortashi O. (2013). The acceptability of HPV vaccine among university male students in UAE. *International Gynecological Cancer Society, Bali, Indonesia.*

Ortashi O. (2013). The Fundamental value of HPV vaccine, Primary Health Care workshop, Al Ain.

Ortashi O. (2013). The HBV vaccine- Abu Dhabi Experience. *The first international oncology Conference, Abu Dubai.*

Ortashi O. (2013). The HPV vaccine in the UAE, Pan Arab conference, Dubai.



2013

Obstetrics & Gynaecology



*Standing left to right: Dr H Elbiss, Dr H Mirghani, Prof M Ezimokhai, Dr O Ortashi
Seated left to right: C Gonzales Garcia, F D Lone, H Raheel*

Department of Paediatrics



Research Profile

Academic staff in the Department of Pediatrics pursue research that promotes child health. Progress has been made in several areas, such as genetic disorders, inborn errors of metabolism, pathogenesis of viral infections, nanotoxicology, vitamin D deficiency, immunization gaps, and animal models of human diseases, such as multiple sclerosis, RSV and influenza infections.

The familial and sporadic forms of cerebral dysgenesis have been investigated at a molecular level. A newly recognized type of agyria-pachygyria associated with agenesis of the corpus callosum has also been delineated. The severe form of myotonia with bone dysplasia [Stüve-Wiedemann Syndrome (SWS)] has been identified to be common in the UAE. A founder mutation in the leukemia inhibitory factor receptor (LIFR) has been discovered in all families with SWS. The gene for Joubert syndrome has been mapped to 9q34.3, and its genetic heterogeneity has been established. A newly recognized type of epiphyseal dysplasia has been described, mapped to 15q26.

Our group has published studies describing the prevalence of metabolic and genetic disorders in the UAE. A low rate of lymphocyte respiration has been identified in children with trisomy 21.

The group investigated why some anti-epileptic drugs (e.g., vigabatrin and lamotrigine) ingested by women during pregnancy cause neural tube and other defects. These drugs are found to be teratogenic. Methionine on average was 5 times lower in the embryos of treated pregnant mice than in non-treated controls. Studies are ongoing to determine the impact of folic acid and vitamin B12 supplementations on the frequency of these anomalies in the animal model.

Professor & Chair

Prof A-K Souid

Professors

Prof YM Abdulrazzaq (Emeritus)

Prof L Al-Gazali

Prof H Narchi

Associate Professor

Dr E Aburawi

Dr S Al-Hammadi

Dr M. Khassawneh

Assistant Professor

Dr F Al-Jasmi

Dr M Al-Samri

Dr A Al-Suwaidi

Dr J Suleiman

Teaching Assistant

Dr N Al Dhaheri

Dr F Al Dhaheri

Dr F Ismail

Research Medical Specialists

Dr S Benedict

Mr T Pramathan

Research Nurse

Ms S Al Hamad

Research Assistant/Secretary

Ms S Alketbi

Mr A Diab

Aflatoxins, commonly found in nuts and grains, are found to be increased in pregnant women and their offspring. The immunosuppressive effect of aflatoxin B1 in human lymphocytes has been described.

The bioenergetics and apoptosis of gastric epithelium have been investigated in stomach biopsies from adults. The average rate of gastric epithelium oxygen consumption was found to be $0.18 \pm 0.04 \mu\text{M O}_2 \text{ min}^{-1} \text{ mg}^{-1}$ and cellular ATP $173 \pm 101 \text{ pmol mg}^{-1}$.

The effects of various cytotoxic agents on human and animal tissues are also being investigated. Human lymphocytes, fibroblasts, foreskin, and gastric epithelium are used for this purpose. Animal tissues are also used, such as murine and rat hepatocytes, cardiomyocytes and pneumocytes. The studied toxins and drugs include novel nanoparticles, aflatoxin B1, dactinomycin, doxorubicin, atorvastatin, sorafenib, regorafenib, Pi3K and MEK inhibitors, metformin, valproate, HIV drugs, zolendronic Acid, buformin, salbutamol sulphate, and platinum-based compounds. The toxic effect of ammonia is being investigated in murine brain.

Blood count reference intervals have been established for the neutrophil, lymphocyte and erythroid lineages from birth to 6 years of age. The prevalence of latent TB infection in pediatric patients has also been established. A national survey for patients with Down Syndrome and its associated problems has been conducted. The study assessed the prevalence of overweight/obesity and established the reference values for body mass index (BMI) percentile curves for Emirati children with uncomplicated Down syndrome. The study also included the epidemiology of congenital heart disease in these children. Pediatric studies are ongoing to assess cardiovascular risks of diabetes mellitus.

With a high parental refusal rate for procedures on their children, a study has been conducted to compare the underlying factors behind parental refusal or consent for lumbar puncture.

The association of uric acid urolithiasis with rotavirus gastroenteritis recently described in Japan has been investigated in our pediatric inpatient community.

Several studies on the clinical picture, outcome and several selected complications of bronchiolitis are currently underway.

We are currently investigating the value of serum cytokines, metalloproteinases and heat shock proteins in children to differentiate early between Kawasaki disease and pyrexia of infectious causes.

A study is being carried out to look into the proportion of renal scarring and urological anomalies that can be missed by implementing the NICE or the AAP guidelines for imaging children with urinary tract infections.

In view of the high prevalence of hypovitaminosis D in young pregnant women, a population-based study on the status of vitamin D levels among female adolescents has been completed, showing a very high prevalence. This information will lead to the development of interventional studies, aimed at achieving normal vitamin D status in women prior to pregnancy.

A collaborative study with the department of physics at the UAE University and neonatal units in UK hospitals has looked at the value of computerized texture analysis of "flares" on neonatal cranial ultrasound. We found this new technology to be highly predictive of lesions which will eventually develop into periventricular leukomalacia with poor neurodevelopmental prognosis. With this new technology, the results are apparent several weeks before changes can be seen on other imaging modalities.

Research in medical education has looked at the content validity comparison between the in-house and the NBME pediatric examinations.

Articles in Peer-reviewed Journals

Aburawi EH, Souid AK, Liuba P, Zoubeidi T, Pesonen E. (2013). Early changes in myocardial repolarization and coronary perfusion after cardiopulmonary bypass surgery for ASD repair in children. *BMC Cardiovasc Disord.*, Sep 10;13:67.

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RESEARCH GRANTS

CMHS Research Grants

Dr AR Al-Suwaidi [PI]
Respiratory Syncytial Virus Infection in Galectin-3 Deficient Mice.

Dr J Suleiman [PI], Prof B Ali
Elucidation of the role of cellular trafficking in the pathogenesis of FZD4-mediated Familial Exudative Vitreo-Retinopathy (FEVR).

Dr J Suleiman [PI], Prof B Ali
Identification of the Disease-Causing Gene underlying a New Syndrome of Bone Dysplasia and Ocular Abnormalities in a Consanguineous Emirati Family.

UAEU Startup Grant

Dr AR Al-Suwaidi [PI]
Effects of influenza A virus (IAV) and respiratory syncytial virus (RSV) infections on lung cellular bioenergetics.

UAEU Individual Grant

Dr MT Alsamri [PI]
In vivo and in vitro systems for assessing drug-induced lung (pulmonary) cytotoxicities.

Dr F Al-Jasmi [PI]
Novel diagnostic and therapeutic approaches to bioenergetics disorders.

Dr F Al-Jasmi [PI]
Genetic diseases registry (eGDR), bio-banking and screening of mitochondrial disease.

Prof YM Abdulrazzaq [PI]
1-Acetylation phenotype and genotype in UAE population.

Sheikh Hamdan Bin Rashid Al Maktoum Awards for Medical Sciences Grant

Prof YM Abdulrazzaq [PI]
Individual grant 2-Lamotrigine effect on fetus.
Dr J Suleiman [PI], Prof B Ali
Exome sequencing and homozygosity mapping to identify causative genes mutations in Emirati families with recessive conditions.

Dr J Suleiman [Co-PI]
The Pharmacogenomics of Warfarin Metabolism in UAE Population.

National Research Foundation Grant

Dr J Suleiman [PI], Prof B Ali
Evaluation of the Genetic Manipulation of ER folding and ER-Associated Protein Degradation Components as a Therapeutic Target for ERAD Diseases. [2013-14]

Dr J Suleiman [PI], Prof B Ali
Whole-exome sequencing and homozygosity mapping to identify causative genes underlying autosomal recessive intellectual disability in consanguineous UAE families. [2013-14]

Nestle Educational Institute Grant

Prof YM Abdulrazzaq [PI]
3-FITS study-nutrition in infants and toddlers.

Others

Dr J Suleiman [PI]
Neuronal Antibodies in Pediatric Epilepsy and Encephalitis in the United Arab Emirates (UPAR)

2013

Paediatrics



Back row:
Dr A Alsuwaidi, Prof Abdul-Kader Soud, Dr M Khassawneh, Dr J Suleiman, Mr T Pramathan.
Front row:
Ms S Al Ketbi, Ms S Mazin Al Hamad, MS S Benedict, Dr S Al Hammadi, Mr A Othman, Dr M Alsamri, Dr E H Aburawi.



Department of Pathology

Research Profile:

Professor and Chair:

Prof M Agarwal

Professor:

Prof B Ali

Associate Professor:

Dr S Al Salam

Assistant Professors:

Dr A Albawardi

Dr S Almarzooqi

Medical Research Technologists

Ms A J Mathew

Ms M Sudhadevi

Ms Dhanya S

Secretary

TBA

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

Clinical chemistry: (Prof. Mukesh M. Agarwal)

In the UAE, the prevalence of diabetes mellitus (DM) is amongst the 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. We are continually studying the value of various simple screening tests, which have a high degree of sensitivity. Ultimately, not missing any pregnant woman with GDM will help us to start prevention for DM, after childbirth. This will attain our ultimate objective: to decrease the epidemic of Type 2 DM in the UAE.

Human Genetics (Prof. Bassam Ali)

1. Identification of the molecular defects underlying single gene disorders in the UAE and Arab populations. Recessive disorders are highly prevalent in Arab populations including UAE mainly due to high levels of consanguinity and lack of prenatal and/or pre-conception diagnosis. We 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 dysmorphism disorders. We are collaborating with major research groups at Harvard Medical School (USA), University of California in San Diego USA, King Faisal specialist Hospital and Research Center (KSA) and Sultan Qaboos University (Oman).

2. The cellular mechanisms of human monogenic disorders. We are interested in protein trafficking and quality control within eukaryotic cells. The protein quality control at the endoplasmic reticulum level is responsible for the development of several

human genetic diseases including cystic fibrosis and emphysema. We recently elucidated the cellular mechanisms underlying Robinow syndrome and Acromesomelic Dysplasia type Maroteaux, recessive disorders that has been found in several parts of the Middle East including Oman and Saudi Arabia. We are currently looking to establish the mechanisms underlying Familial Hypercholesterolemia, Hereditary Hemorrhagic Telangiectasia and other ER-associated degradation diseases. In addition, we are exploring ways of manipulation ER quality control for potential therapy of such diseases.

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

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

1. Expression of EBV in Hodgkin Lymphoma among UAE nationals. The epidemiology of Hodgkin's lymphoma (HL) shows wide geographic variation in histological subtypes and in its association with the Epstein-Barr virus (EBV). The proportion of EBV positive HL is low in industrialized countries, high in non-industrialized countries and intermediate in early-industrialized countries. Reports from the Arabian Gulf and Middle East are few. The aim of our study was to determine the epidemiology of HL in The population of United Arab Emirates (UAE) nationals, an early industrialized country in the Arabian Gulf, and to delineate the extent of its association with EBV. We review the cases of HL for the period 1988 through

2004 for histological classification and demographic data. All Cases diagnosed as Hodgkin's lymphoma were examined for the presence of EBV using immunohistochemistry (IHC) for the latent membrane protein I (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 EBER, 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 BRCA 1 and BRCA 2 genes in breast carcinoma among United Arab Emirates nationals and their correlation with P53, Ki 67, bcl2, nm2, c-erb-B2, estrogen receptors and progesterone receptors expression. Breast carcinoma is the most common malignant tumor and the leading cause of cancer death in women all over the world. It is the commonest cancer among UAE population and the most common cancer among females. The age specific incidence ratio for females in UAE was 19.4 per 100,000 population. It is currently estimated that 5–10% of all breast cancers are hereditary and attributable to mutations in several high penetrance susceptibility genes, of which only two have been identified BRCA1 and BRCA2. Earlier estimates suggested that BRCA1 and BRCA2 mutations were responsible for 75% of site-specific breast cancer families and the majority of breast and ovarian cancer families.

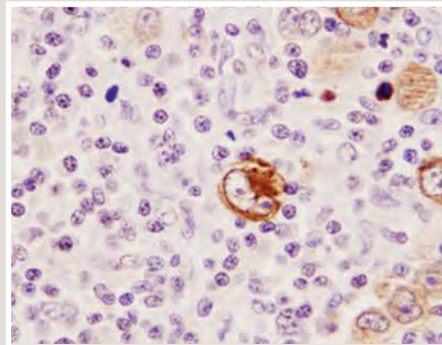
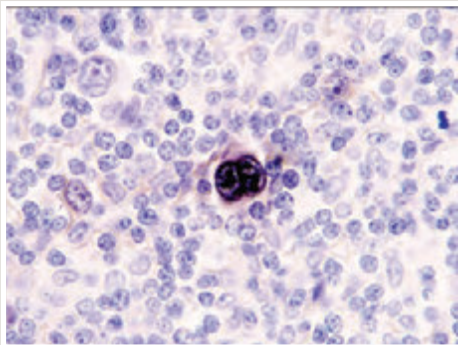


Figure:
(A) Hodgkin lymphoma with classical Reed–Sternberg cell showing dark-purple nuclear staining for EBER, in situ hybridization, X400. (B) Classical Reed–Sternberg cell showing membranous, cytoplasmic and Golgi immunoreactivity to LMP-1, streptavidin–biotin, X400

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 elsewhere. 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.

6. Hypoxic signals in myocardial Ischemia. Coronary heart disease is a major cause of death in the United Arab Emirates. Hypoxia is an integral component of myocardial ischemia/infarction. Hypoxia triggers multiple signalling pathways

in cardiac cells that cause them to adapt and subsequently survive ischemia. Our research will address mechanism of this hypoxic damage by investigating the role of HIF-1 α and its targets in animal models. Our preliminary data has shown that HIF-1 α is expressed by human and mouse cardiac myocytes in early ischemia. We hypothesized that in hypoxic myocardium, the robust expression of HIF-1 α serves to maintain expression of proteins which promote cell survival. We expect that this study will elaborate on the proposed protective role of these proteins in the heart and determine if they have diagnostic or therapeutic potential in the future.

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

1. Murine model for nephrotoxicity and cytoprotection. Diabetes and hypertension are common co-morbidities, both adversely affect renal function. Nephrotoxic drugs are frequently used in clinical practice to manage wide spectrum of diseases from simple bacterial infection to cancer. The study aim is to develop a murine model for assessing nephrotoxicity and cytoprotection. The nephrotoxicity will be induced by drugs and bacteria. The cytoprotection will be conferred by thiol agents. The following biomarkers will be monitored; cellular bioenergetics, caspase activity, and glutathione and histopathology and electron microscopy.

2. Assessing the cytotoxicity of anticancer Therapies Targeting Cell-signaling. Several studies have confirmed the link between human carcinogenesis and molecular aberrations in cellular signaling pathways. For example, key mutations in Ras/Raf/MED/ERK or PI3K/PTEN/Akt/mTOR are implicated in the pathogenesis of numerous human epithelial cancers. Therefore, targeting these pathways with specific inhibitors of RAS, ERK, Pi3K, AKT and/or mTOR is expected (and has been proven in some tumours) to control the disease. The research involves studying the cytotoxicity of targeted anticancer agents (e.g., inhibitors of Pi3K, AKT, mTOR and MEK) in fresh samples of human epithelial tumors.

3. Investigation the role of Mouse Mammary Tumor Virus (MMTV). Presence in the UAE Population. Breast cancer is leading cause of mortality among women worldwide. In the UAE,

it has been on the rise with a higher incidence in young women. Being a multifactorial disease, it is critical that we understand the risk factors that are at play so that one can begin to address the source of its induction/ development within UAE and globally. We aimed to assess the role of mouse mammary tumor virus (MMTV) in this disease. MMTV has been conclusively shown to be the causative agent of breast cancer not only in mice, but a distinct possibility exists that a virus similar to MMTV, human mammary tumor virus (HMTV), may have a role to play in human breast cancer as well. An increasing number of studies in the past few years have reported the detection of MMTV-like sequences in specific world populations with breast cancer; however, the results have been controversial due to many reasons, including differences in techniques, severity/type of cancer, and differences in geography. The study aims at looking at a large number of breast cancer cases to assess its association or lack of as a causative agent in breast cancer in the UAE.

4. IgG Subclass staining in Renal Biopsies with Membranous Glomerulonephritis (MGN) Indicates Subclass Switch during Disease Progression. Most patients with idiopathic (primary) membranous glomerulonephritis (MGN) have IgG4 antibodies to the phospholipase A2 receptor (PLA2R). There are no studies addressing the IgG subclass distribution across different stages of MGN. In primary MGN most (76% of cases) were IgG4 dominant. In contrast, in secondary MGN IgG1 was dominant in 60% of biopsies ($p=0.0018$).

Histopathology/gynaecological and paediatric Pathology (Dr. Saeeda Almarzooqi)

1. Cytotoxicity Analysis of Anticancer Therapies Targeting Cell-signaling. Key mutations in Ras/Raf/MED/ERK or PI3K/PTEN/Akt/mTOR are implicated in the pathogenesis of numerous human epithelial cancers. Targeting these pathways with specific inhibitors of RAS, ERK, Pi3K, AKT and/or mTOR is expected to control the disease.

2. H. pylori in Sleeve gastrectomies: Prevalence and Rate of Complications. Prevalence of Helicobacter pylori has not been established in sleeve gastrectomy specimens and will be correlate with rate of post-operative complications.

3. Investigation of Mouse Mammary Tumor Virus (MMTV) Presence in the UAE Population: A Putative Viral Agent in Human Breast Cancer. Breast cancer is a multifactorial disease, current study investigate the role of mouse mammary tumor virus (MMTV). MMTV has been conclusively shown to be the causative agent of breast cancer not only in mice, but a distinct possibility exists that a virus similar to MMTV, human mammary tumor virus (HMTV), may have a role to play in human breast cancer as well.

4. Oral and laryngeal squamous cell carcinoma: The prevalence of high risk human papilloma viruses (HPV) in United Arab Emirates population. Background: High risk human papillomaviruses causes anogenital squamous cell carcinoma. Recent evidence implicates the very same viruses in the pathogenesis of oropharyngeal and laryngeal squamous cell carcinoma. The current study will determine the prevalence of human papillomavirus in oral and laryngeal squamous cell carcinomas in the local population of the United Arab Emirates.

5. Bioenergetic Study of Murine Hepatic Tissue Treated In Vitro with Atorvastatin . Atorvastatin (a 3-hydroxy-3-methylglutaryl coenzyme-A reductase inhibitor) is a cholesterol-lowering drug, which is recognized for its potential hepatotoxicity. This study investigated in vitro effects of this agent on hepatic tissue respiration, ATP content, caspase activity, urea synthesis and histology.

6. Bioenergetics and Caspase Activation in Murine Lung Tissue Infected with RSV. Lung tissue respiration, ATP content and caspase activation were investigated in RSV-infected Balb/c and C57Bl/6 mice.

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RESEARCH GRANTS

CMHS Research Grant

Dr S Al-Salam (PI)
Role of TGR5 in the development and progression of Breast cancer.

Drs S Almarzooqi (PI), AS Albawardi (Co-PI)

In Vitro Assessment of Antitumor Activities

Drs S Almarzooqi (PI), AS Albawardi (Co-PI)
Oral and laryngeal squamous cell carcinoma: the prevalence of high risk human papilloma viruses (HPV) in UAE population.

Dr AS Albawardi (Co-PI)
In-vitro analysis of the cytotoxicity of anticancer therapies that target cell-signaling.

Profs BR Ali (PI), Al-Gazali L (Co-PI)
Identification of the Disease-Causing Gene underlying a New Syndrome of Bone Dysplasia and Ocular Abnormalities in a Consanguineous Emirati Family.

Profs BR Ali (PI), L Al-Gazali (Co-PI)
Elucidation of the role of cellular trafficking in the pathogenesis of FZD4-mediated Familial Exudative Vitreoretinopathy (FEVR).

UAEU Research Startup Grant

Dr AS Albawardi (PI).
In Vitro effects of platinum compounds on murine renal cellular respiration

UAE University-National Research Foundation Grant

Dr AS Albawardi (Co-PI)
Characterization of Mouse Mammary Tumor Virus (MMTV) in Human Tumors in the UAE: Is MMTV a General Biological Carcinogen?
Dr S Al-Salam (PI)
HIF-1 α survival signal in Ischemic Myocardium: A protective role of Galectin-1 and Galectin-3.

Dr S Al-Salam (Co-PI)
Water-pipe (Shisha) smoking and hypertension: Pathophysiologic mechanisms and possible influence of antioxidant and anti-inflammatory drugs.

Sheikh Hamdan Bin Rashid Al-Maktoum Award For Medical Sciences

Profs BR Ali (PI), L Al-Gazali (Co-PI)
The Pharmacogenomics of Warfarin Metabolism in UAE Population.

Profs BR Ali (Co-PI)
Exome sequencing and homozygosity mapping to identify causative genes and mutations in Emirati families with recessive conditions.

Terry Fox Fund for Cancer Research grant

Dr S Al-Salam (PI)
Role of Galectin 1&3 in the breast cancer chemoresistance.



2013

Pathology



*Standing left to right:
Dr B Ali, Prof M Agarwal, Dr A Castella,
Dr Suhail Al-Salam
Seated left to right:
Dr A Al Bawardi, Dr S Al Marzooqi,
Ms A Mathew, Mr D P Ranganathan*

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Department of Pharmacology & Therapeutics



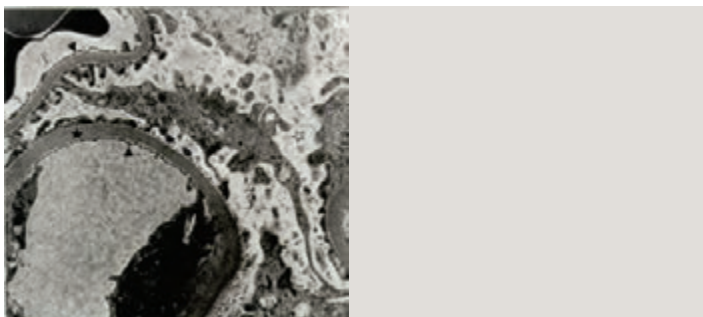
Research Profile

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

Prof. Abdu Adem **Diabetes**

Mechanisms of Apoptotic Cell Death in Diabetes

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



Professor & Chair

Prof A Adem

Professors

Prof S Bastaki

Prof MY Hasan

Associate Professors

Dr S Attoub

Dr M Oz

Assistant Professors

Dr R Mohanraj

Dr S Ojha

Dr B Sadek

Dr F Yousuf

Teaching Assistant

Mr R A Beiram

Medical Research Specialist

Mr S Dhanasekaran

Ms K Arafat

Dr SM Nurulain

Ms N Amir

Mr A Shamsulisam

Medical Secretary

Ms S Duncan

Office Assistant

Mr S Alikutty

Central Facilities (Animal House)

Dr M H Ali

Mr M Shafiullah

Mr M El Wasila

Neurodegenerative Diseases Novel Selective Ligands for Muscarinic Acetylcholine Receptors

Five muscarinic acetylcholine receptor subtypes (M1- M5) have been cloned and are found in the brain. However, the pharmacological identification of the subtypes responsible for the various central effects of the muscarinic drugs is difficult due to the lack of highly selective muscarinic agonists and antagonists. Our lab in collaboration with others, has isolated muscarinic M1 and M4 receptor subtype selective toxins from mamba snake (*Dendroaspis*) venoms. At present the status of M1 and M4 receptors in health and disease states in humans are being investigated. Results from his lab have shown significant decrease of M4, but not of M1 receptors in the hippocampus of Alzheimer's patients compared to controls. Moreover, changes in these receptors have been reported by his group in adrenalectomized animal models which have been shown to have a selective loss of hippocampal neurons. Attempts to isolate and characterize M2, M3, and M5 selective toxins by his group is in progress. Behavioral, biochemical and electrophysiological techniques are used in his laboratory to understand the role of other neurotransmitters in diabetes, epilepsy, aggressive behavior, aging, and degenerative diseases.

Prof. MY Hasan Neuroscience

The main line of research has been focusing on neurotransmission. We have been applying behavioral, biochemical and electrophysiological and morphological techniques in understanding the role of neurotransmitters in various disorders (diabetes, epilepsy, aging, neurodegenerative diseases). Findings indicated significant modification of specific neurotransmitters in many of the disorders. It appears that alteration in calcium mobilization and free radical system may be a common factor accounting for some of the changes observed in aging, diabetes and Parkinson's disease. Another line of research has been toxicological studies and impact of toxins on muscle the nervous system. We have investigated the effects of heavy metal Intoxication in relation to degenerative diseases. We studied impact of heavy metal toxicity on nervous system and muscle and observed that free radicals may be involved in metal toxicity and antioxidants like ascorbic acid & alpha-tocopherol may have a protective

role against metals effects Also we have been looking and neurotoxicity and general toxicity from organophosphates and nerve gases. We have been screening antidotes for organophosphate poisoning and implication for treating exposure to nerve gas agents. Furthermore my interest covered broad areas in medical education and community health. Some of the projects performed included; drug utilization and rational use of antibiotics and analgesics in health care centers and community, developing Sickness Impact Profile for studying quality of life in infertile patients, studying views of medical students and physicians of clinical skills teaching at the medical colleges and surveying patient's attitudes towards students involvement in medical practice.

Prof. Salim Bastaki

Gastroenterology: Gastrointestinal diseases have increased in recent years. 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. At present we are studying the new H3R antagonist on Gastric acid and Ulcer formation in the rat in vivo and in vitro. We have finished and published the effect of Receptor antagonist and PD-136450 on stress-induced gastric ulcer on in 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. We have finished working on the effects of Aflatoxin B on pregnant mice and working on the new antiepileptic drug (AED) on the fetuses of mice.

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. We just published the work in PlosOne the top online Journal. At present we are working on NAT2 phenotyping and genotyping in the Emiratis.

Dr. Samir Attoub Cancer research

My research is focused on the role of PI3K/Akt/NF 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/NF κ B 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/PKB α , Akt2/PKB β , and Akt3/PKB γ) 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 knockdown of the Akt's on HT29 cell line on tumour growth will be tested in nude mice. In addition, we will assess the development of new blood vessels (CD31 antibody), the presence of apoptotic cells (caspase 3 activity), and proliferative activity (ki67 antibody). We'll test the therapeutic impact of the Akt isoforms inhibition on metastasis using the highly invasive and metastatic lung cancer cell line LNM35 targeting the lymph nodes and lungs. This cell line is stably transfected with a vector encoding luciferase, to allow a rapid and reliable quantification of micro-metastases. To identify the mechanisms underlying the effects of Akt isoform inhibition, we will search for differentially expressed genes using microarray analysis and confirm the results by real-time RT-PCR. It is anticipated that this project will provide evidence that targeting Akt-1 and/or -2 is a promising strategy for the treatment of colon and lung cancer.

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

The overall goals of this part of my research are directed towards studying the in vitro and in vivo cytotoxic properties of the synthesized/purified drugs (Luteolin, Thymoquinone and Frondoside A). The effective drugs will be further investigated in order to determine their mechanisms of action using various molecular biological techniques. In addition, we will attempt to

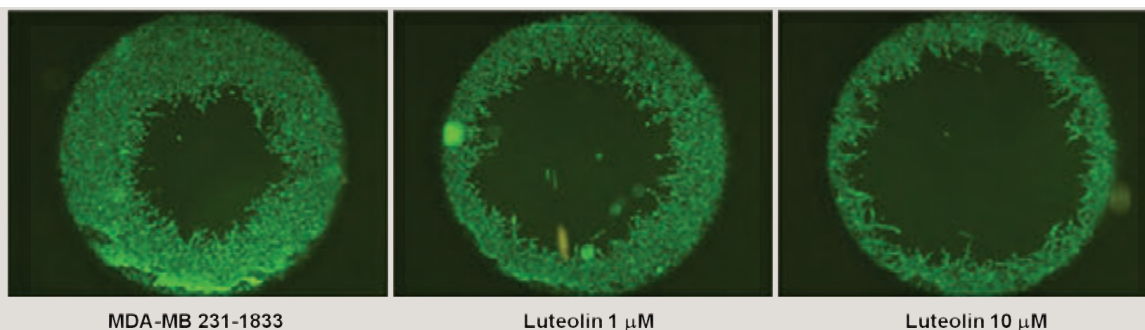


Figure 2: Dose–response effect of luteolin on Breast cancer cell invasion.

investigate the effects of these drugs on cell survival and invasion in vitro and on tumor growth in vivo. The effects on metastasis in nude mice using various cancer cell lines will also be investigated.

Dr. Murat Ahmet Oz

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

Dr. Rajesh Mohanraj

Main research interest pertains in deciphering the role of neutral sphingolipids and identification of novel therapeutic targets for the diabetic vascular complications.

Dr. Shreesh Ojha

The research interest of Dr. Shreesh Ojha focus on targeting the interplay of oxidative/nitrosative stress and inflammatory signaling and their manipulation using natural, synthetic or semi-synthetic bioactive agents in the pathogenesis in ischemic heart disease, diabetes and diabetic vascular complications and metabolic syndrome. He uses the animal models of ischemic heart disease subsequent to: isoproterenol-induced myocardial infarction and cardiac hypertrophy, doxorubicin-induced cardiotoxicity and cardiomyopathy, coronary artery ligation induced myocardial ischemia-reperfusion injury, streptozotocin induced diabetes and long term diabetic vascular complications, cisplatin-induced cardio-

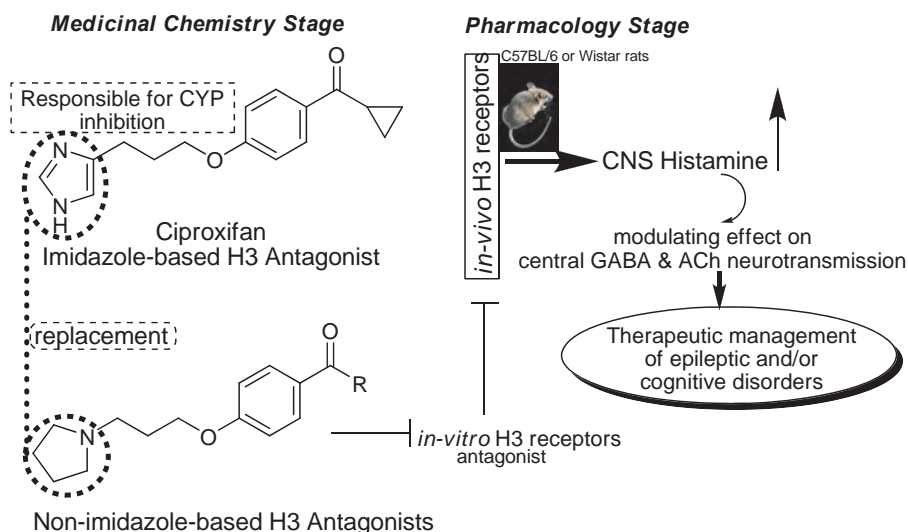
toxicity, as well as high fat diet induced diabetes, obesity and metabolic diseases.

The research work investigates the mechanisms that may be responsible for modifying; inducing or preventing cardiovascular or metabolic disease based on evidences arises from different approaches including hemodynamic, biochemical, molecular biology and histology. In order to understand the molecular and subcellular basis of cardiac dysfunction in experimental animals with or without various drug treatments. Currently, various substances are being tested to identify novel compounds which might find their use as preventive agent or as adjuvant in treatment or as a template for future drug discovery and development in better management of ischemic heart diseases and metabolic syndrome.

Dr. Bassem Shabab Sadek

Histamine H3 Receptors as Novel Drug Targets for Therapeutic Management of Epilepsy and Cognitive Disorders

The development of selective antagonists targeting central histamine H3 receptors enables the explanation of their physiological and pathophysiological functions, as the difficulty for developing satisfactory therapy of Alzheimer's disease (AD), Attention-Deficit-Hyperactivity-Disorder (ADHD), or drugs abuse (DA) lies in the complex pathophysiology of the disease, which involves numerous pathways that include deficiency in cholinergic neurotransmission, abnormalities of adrenergic, serotonergic and dopaminergic neurotransmission. Thus, the development of H3 receptor antagonists belonging to different chemical classes capable of penetrating into the CNS and modulating histaminergic neurotransmission in the central nervous system can positively affect the multi-neurotransmitter disorders, e.g. AD, ADHD, or DA.



Research interest of Dr Bassem Shaban Sadek focuses on the structural development of those histamine H3 receptor antagonists targeting cognitive disorders. To this end, different chemical classes of antagonists, e.g. piperidine- and pyrrolidine-based antagonists will be synthesized and investigated for their *in-vitro* antagonistic effect at human histamine H3 receptors. Selected compounds with high *in-vitro* antagonist activity will be further examined on their selectivity profile against a wide set of human GPCRs expressed in different cell lines. Those most promising antagonists will be investigated on their *in-vivo* modulating effects on epilepsy, memory impairment and drug addiction using different animal models in rats and mice, as such pharmacologic evaluation is a key stone in the development of future drugs of significant role in therapeutic management of aforementioned central disorders.

Dr. Fakhreya Yousuf

Major research activities are in the area of stroke and vascular diseases. She investigates the cellular and molecular mechanisms of white matter injury due to chronic stroke/ischemia, especially the role of inflammation and matrix metalloproteinases in white matter damage in a rat model of vascular cognitive impairment.

Vascular cognitive impairment (VCI) is a heterogeneous disease due to large and small vessel pathology. Small vessel disease with arteriolosclerosis secondary to hypertension and diabetes with white matter injury is the most common form. As the population increases in age,

the incidence of vascular causes of dementia is projected to rise, creating a pressing need to use animal models to elucidate the pathophysiology of the white matter damage and identify effective treatments. During her postdoctoral fellow in the USA, she developed a novel model for white matter gliosis in older spontaneously hypertensive rats that are stroke prone (SHR-SP). At 12 weeks of age they underwent unilateral carotid artery occlusion (UCAO) and were fed with the Japanese permissive diet (JPD) with added salt. Four weeks later (week 16 of life), they developed extensive white matter damage with gliosis, apoptosis of mature oligodendrocytes in white matter lesions, and compensatory increase in immature oligodendrocytes. Increased MMPs associated with BBB disruption and myelin breakdown. Memory impairment, as determined by Morris water maze (MWM), was evidenced starting at week 3 following UCAO/JPD. This model combines hypertensive changes in the blood vessels with hypoxia and genetic/environmental factors, making it similar to VCI in patients. Her current objectives are to understand the molecular and subcellular basis of oligodendrocytes death, myelin loss, and BBB opening in UCAO/JPD rat model of vascular cognitive impairment. She is looking into the role of hypoxia/HIF-1 α expression in MMP-9 induction, opening of the BBB, and white matter damage. She is also developing strategies for therapeutic intervention to prevent or lessen BBB damage, myelin loss and cognitive impairment in vascular cognitive diseases.

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RESEARCH GRANTS

CMHS Research grants-UAE

Prof Abdu Adem (PI)
Kainic acid induced long-term neurodegeneration: the role of TNF-NP/13/42-2013)

Prof Salim Bastaki (PI)
Role of melatonin in the prevention of metabolic syndrome in

young Zucker Diabetic fatty (ZDF) Rats (NP/13/43)

Dr Murat Oz (PI)
Effects of menthol on the Ionic Currents Mediated by the Activation of Human Serotonin-type3 Receptors Expressed in *Xenopus Oocytes*. (2013)

Dr Fakhreya Yousuf (PI)
Hypoxia induction of matrix metalloproteinase-9 in a novel rat model of vascular cognitive impairment. (2013)

Dr Shreesh Ojha (PI)
Studying the Pharmacotherapeutic Potential and underlying Mechanism of Bioactive Agents Targeting PPAR- γ /CB receptors in Animal Model of Metabolic Syndrome. (2013)

Dr Bassem Sadek (PI)
Piperidine-substituted Phenytoin Derivatives as Histamine H3 Receptor (NP/13/17), Antagonists for Therapeutic Management of Epilepsy.

Emirates Foundation Research Grant

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

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

National Research Foundation Grant

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

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

Prof Abdu Adem (PI)
Exposure to heavy metals and Taupathies (2013-2015)

Prof S Bastaki (PI)
Effect of different chemicals in onions, garlic and gastric acid se-

cretion and gastric ulcers induced by indomethacin and acidified ethanol in rats. 2012-2013.

Dr S Attoub (PI)
Notch isoforms in cancer cell survival and invasion: who is the culprit? 2012-2014.

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

Dr Murat Oz (PI)
Title: The effects of 2-Arachidonoyl Glycerol, a major endocannabinoid, on the function of 5-HT₃ receptors of the hippocampal Interneurons. 2012-2014.

Dr. Fakhreya Yousuf
Title: Hypoxia regulation of MMP-9 in a novel model of vascular cognitive impairment. 2013-2015

Dr. Shreesh Ojha (PI)
Pharmacological evaluation of multitargeted bioactive agents [Peroxisome Proliferator Activated Receptor- γ ; PPAR γ & Cannabinoid Receptors] in diabetes and its complications. (2013).



Terry Fox Cancer Research Grant

Dr S Attoub (PI)
Effect of Fronodoside A on tumour cell survival and invasion in vitro and the growth of breast tumor xenografts in athymic mice. 2012-2014.

Sheikh Hamdan Bin Rashid Al Maktoum Award For Medical Sciences

Dr Shreesh Ojha (PI)
Investigation on the role of naturally occurring phytochemicals in the rat model of metabolic syndrome. (2013).

Dr Rajesh Mohanraj (PI)
Role of Lactosylceramide In the Pathogenesis of Diabetic Nephropathy. (2013-2015).



2013

Pharmacology



Standing left to right:

*MsShahazad Sulaiman, Dr S Ojha,
Dr S. M. Nurulain, Mr A Sheikh,
Dr R Mohanraj, Prof. A Adem,
Dr Murat Oz, Mr D Subramanian,
Mr M Elwasila, Mr S Kutty, Dr B Sadek,
Mr M Shafiullah.*

Seated left to right:

*Dr S Attoub, Ms N Amir, Ms K Arafat,
Ms S Duncan, Dr F Jalal, Prof. Salim
Bastaki, Dr M Hag Ali.*



Department of Physiology

Research Profile

Professor & Chair:
Prof FC Howarth
Professors:
Prof TE Adrian
Prof M Fahim
Prof W Lammers
Prof M Ljubisavljevic
Prof A Nemmar
Medical Research
Specialists:
Ms S Beegam
Mr J Oommen
Ms K Parekh
Mr A Qureshi
Ms B Stephen
Secretary:
Mr P Rajagopalan
Office Assistant:
Mr C Saeed

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

Basic neurophysiology and experimental clinical neurophysiology laboratories

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

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

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



Fig 1. The rat with stroke induced by middle cerebral artery temporary occlusion being stimulated by TMS and the schematic depiction of TMS stimulation in a human subject.

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

Aging and neurodegenerative disorders

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

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

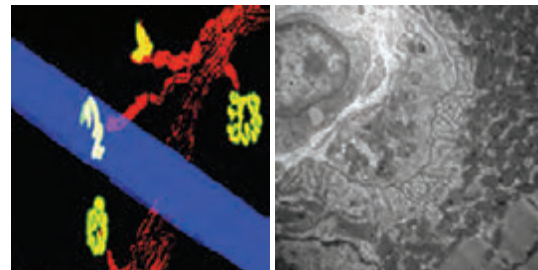


Fig 2

Cardiovascular function and diabetes

The major research focus of Professor Chris Howarth is diabetes mellitus and heart function and this work is carried out in the 'Electrophysiology Research Laboratory', a joint venture between Professor Howarth and Dr Murat Oz (Pharmacology). A variety of *in vivo* and *in vitro* techniques are employed to investigate the effects of type 1 and type 2 diabetes on the heart. Biotelemetry is used to continuously measure the ECG and other parameters *in vivo*. Video edge detection techniques are used to measure shortening and fluorescence photometry is used to measure intracellular Ca^{2+} in individual cardiac myocytes. Patch-clamp techniques are used to study membrane currents. Work in the



Fig 3: Professor Ernest Adeghate (Department of Anatomy), Professor Chris Howarth (Department of Physiology), Khawla Salem (PhD Student) and Mohamed Shafiulla (Department of Pharmacology) engaged in a surgical procedure to implant biotelemetry devices



Fig 4: Khawla Salem inspecting the animals post-surgery in the biotelemetry room



Fig. 5: Dr Michael Jacobson (Higher Colleges of Technology, Abu Dhabi) examining biotelemetry data conveyed live via the INTERNET from our laboratory in the College of Medicine & Health Sciences to his laboratory in Abu Dhabi.

Electrophysiology Research Laboratory is supported by technical staff, research assistants, undergraduate medical and science students, Ph.D. and M.Sc. students and post-doctoral scientists from overseas laboratories who visit on a regular basis. Professor Howarth has ongoing collaborations with researchers in other departments in CMHS and various international research laboratories in the UK, Ukraine and other countries. Recent projects have investigated the effects of exercise training and sucrose-enriched diet on the expression of genes encoding a wide variety of cardiac muscle proteins and ventricular myocyte contraction and Ca^{2+} signaling in type 2 diabetic heart and the electrophysiology of atrioventricular node cells in type 1 and type 2 diabetic heart. Work in the laboratory has been generously supported by Sheikh Hamdan Bin Rashid Al Maktoum Award for Medical Sciences, Emirates Foundation, National Research Foundation, United Arab Emirates University, College of Medicine & Health Sciences, LABCO a partner of Sigma-Aldrich and the Al Ain Equestrian, Shooting and Golf Club.

Mapping laboratory

Work has proceeded very well in 2013 with major research developments obtained both in the mapping lab in Al Ain and through our collaborations with other laboratories around the world.

Following our discovery of reentrant arrhythmias in the small intestine (reported in the 2012 issue), more work has been performed both in our lab and that in Auckland, New Zealand on new types of reentrant arrhythmias in that organ. All this has led to an invitation to write an editorial on this emerging topic.

In Al Ain, we have continued our collaborative work with Dr Hamad Fayeze (dept. of Surgery) on the effects of carbachol, TTX and nifedipine on electrical propagation in the guinea pig bladder.

Our collaboration with Dr Sandeep Subramanya (Ras Al Khaima College of Medical Sciences, RAK) has continued studying a) the effects of ethanol and b) the effects of cholera toxin on slow wave propagation in the small intestine. Aside from our work in the GI and in the urological system, our continuous work on the pregnant uterus has attracted interest in the form of an invitation to present a one-hour talk on the electrical activities in the pregnant myometrium. This presentation was then invited

to be submitted as a review on this topic and published in *Reproductive Sciences*. Finally, during the annual meeting of the Federation of European Physiologists Societies (FEPS), which will take place in August 2014, one of the main sponsors, *Acta Physiologica* (IF: 4.382) has invited us to organize a symposium and a special issue on the topic of electrical propagation in several smooth muscle organs. We have found nine colleagues willing to review this topic from the viewpoint of their expertise.

Pathophysiologic mechanisms of particulate air pollution

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

Diabetes, hypertension and renal failure are considered as major health problems in the UAE and the world at large. Not only the medical complications life-threatening but the cost of treatment is imposing enormous and increasing strains on national health budgets. In my laboratory we are studying mechanisms underlying the effects of air pollution on diabetes, hypertension and renal failure. I also aim at searching novel pharmacological agents that can ameliorate or prevent the toxicity of air pollution. Nanotechnology is a broad interdisciplinary area of research, grouping physical, chemical, biological, and engineering expertise involved in manufacturing materials at a sub-100-nm scale. Whereas benefits of nanotechnology in areas as diverse as diagnosis, imaging, drug delivery, and information and communication technologies are extensively publicized, the discussion of the potential effects of the widespread use of nanotechnology in consumer and industrial products is just beginning to emerge. In my laboratory, we are investigating the biokinetics and the pulmonary and cardiovascular toxicological potential of engineered nanoparticles. Studies on the pulmonary and extrapulmonary effects of particle shapes (e.g., spheres, tubes, rods), chemistries (e.g., polystyrene, TiO_2 , FeTiO_2 ,

carbon) and surface characteristics (iron coating, charge) are being investigated. These studies involve in vivo and in vitro investigations.

The cancer laboratory

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

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

Little is currently known about the mechanisms of cancer cachexia, which is a major cause of morbidity and mortality in cancer patients. In collaboration with Prof. Farouk Safi in the Department of Surgery and Dr. Joel Malik at Weill Cornell Medical College in Qatar, we have been investigating early gene expression changes in skeletal muscle from patients with cancer cachexia. The studies were performed using next generation RNA sequencing (RNAseq). Early exciting findings show marked

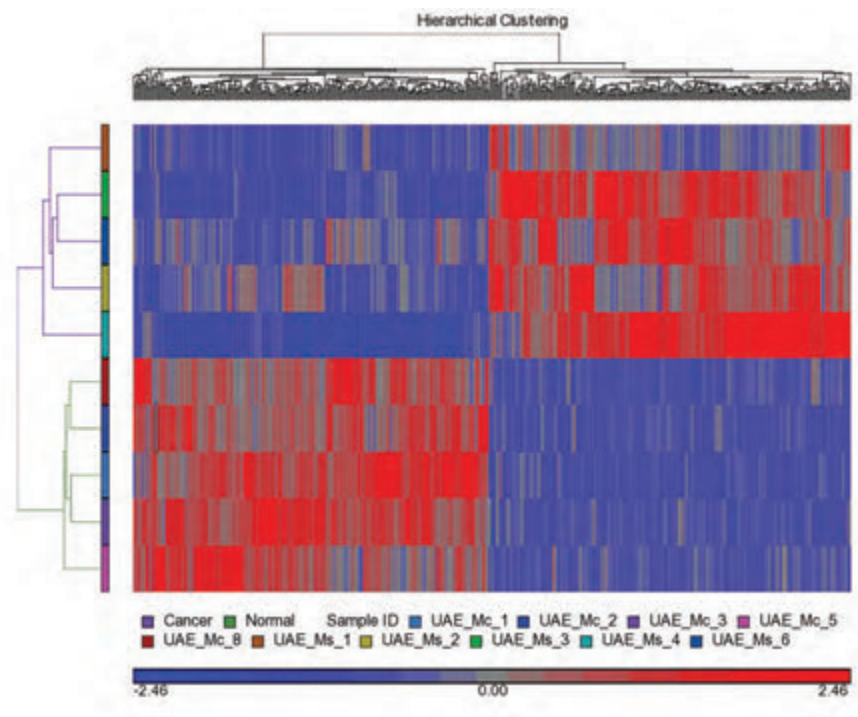


Fig 6: Heat map showing expression of individual genes (each vertical line represents an individual gene) in control patients (top panels) and patients with cancer cachexia (bottom panels). Increased gene expression is denoted in red and reduced expression denoted in blue.

differences in gene expression. In silico analysis using the Kyoto Encyclopedia of Genes and Genomes identified grouping of genes with altered expression into different pathways (KEGG Pathways), particularly in expression of genes previously shown to be involved in various cardiomyopathies, with the ubiquitin protein degradation pathway, normal muscle contractile function, calcium signaling and metabolic pathways. These studies should shed light on the mechanisms of cachexia and pave the way for therapeutic intervention of this debilitating problem.

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 ex-

pression were seen, particularly in the retinas of diabetic animals. Ongoing studies include confirmation of the expression changes using fast real-time RT-PCR and immunocytochemistry for the protein products of these genes in collaboration with Dr. Eric Mensah-Brown in the Department of Anatomy. Marked changes in gene expression have been documented. For example, in the pelvic ganglia from diabetic animals the expression of vasoactive intestinal polypeptide (VIP) and neuronal nitric oxide synthase (nNOS) are dramatically reduced in diabetic animals, while expression of another transmitter, Cholecystokinin (CCK) is dramatically increased. Since VIP and nNOS play a role in penile erection and in control of bladder function, these changes are likely to explain the erectile dysfunction and for urinary retention that are seen in diabetics. Early changes in expression of several genes, including calpain 3, and several crystallins, in the retina have been seen in three differ-

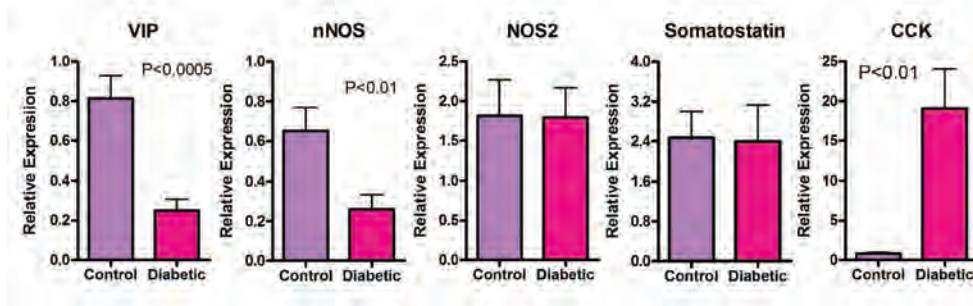


Fig 7: Relative expression of mRNA for VIP, neuronal NOS (NOS1), NOS2, somatostatin, and CCK in pelvic ganglia from control rats and diabetic rats 12 weeks after treatment with streptozotocin. Real-time RT-PCR confirmation of low density gene expression array data, $n=8$ in each group.

ent models of diabetes in the rat. Changes in expression of these genes are likely to be involved in the pathophysiology of cataracts, diabetic retinopathy and glaucoma.

Clinical studies on lower gastrointestinal hormones in diabetes and obesity

Enteroendocrine L-cells produce glucagon gene products (GLP-1 and oxyntomodulin) as well as PYY. All are satiety factors. GLP 1 is also an incretin. The number of L-cells and hormonal contents increases distally through the gut with highest concentrations in the rectum. We have previously shown that intracolonic infusion of bile salts in humans causes secretion of L-cell hormones, triggered via TGR5 membrane receptors. Together with colleagues

in the Department of Internal Medicine, Prof. Adrian has been investigating release of these lower GI hormones in obese patients with type 2 diabetes mellitus. Using a simple and well-tolerated agent, this group has shown substantial increases in circulating concentrations of GLP-1, PYY and insulin. The release of the lower GI hormones resulted in a fall in circulating glucose levels and a marked reduction in spontaneous caloric intake of a subsequent meal. This mechanism is likely to be valuable in the treatment of type 2 diabetes and obesity. Investigations focused on the improvement of diabetic status and reduction in body weight through this pathway are planned.

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RESEARCH GRANTS

CMHS New Research Grants

Prof FC Howarth (PI)
Effects of sodium-glucose co-transporter inhibitors on cardiac muscle contraction and Ca²⁺ transport in the diabetic heart.

Profs TE Adrian (PI), Farouk Safi
Effects of Frondoside A on Pan-

creatic Cancer Stem Cells.
Prof A Nemmar (PI), Ms P Yuvaraju, Ms S Beegam
Impact of Experimental Type 1 diabetes mellitus on systemic and coagulation vulnerability in mice acutely exposed to diesel exhaust particles.

Dr O Bakouch (PI), Profs A Nemmar, F Hammad, Dr L Lubbad
Experimental studies on the changes in the glomerular permeability in obstructive nephropathy in normal and STZ-diabetic rats.

Profs M Ljubisavljevic (PI), S Shehab
The effects of repeated Repetitive Transcranial Magnetic Stimulation - the profile and duration of changes of gene expression in rat brain.

UAEU Interdisciplinary Grants

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

UAEU Interdisciplinary Grants
Prof MA Fahim (PI)
Ghrelin and recovery after anti-neoplastic and cytotoxic therapy

UAEU Center-Based Interdisciplinary Research Grant Competition
Dr G Khan (PI), Prof TE Adrian, Dr S Attoub
Impact of Epstein-Barr Virus Small RNA (EBER-1) on Genes Associated with Inhibitor of Apoptosis. 2013-2016.

Sheikh Hamdan Award for Medical Sciences

Profs FC Howarth (PI), TE Adrian, Dr M Oz, Prof H Raza, Mr A Qureshi, Ms K Parekh, Ms A John, Mr L Kury, Mr K Salem
Remodelling of cardiac muscle and Ca²⁺ transport proteins underlies the transition between normal contraction in pre-diabetic heart and abnormal contraction in genetic and diet-induced type 2 diabetic heart. [2012-2014]

Profs H Raza (PI), FC Howarth
Elucidation of the molecular

mechanisms and metabolic changes in inflammation and diabetes: Anti-diabetic and anti-inflammatory effects of non-steroidal anti-inflammatory drugs. [2012-2014]

Terry Fox Fund for Cancer Research

Profs TE Adrian (PI), F Safi, Drs S Al Marzooqi, A Al Bawardi.
Isolation of Human Pancreatic and Hepatic Cancer Stem Cells and Investigation of their Eradication

Emirates Foundation Grant

Prof FC Howarth (PI)
Progressive changes in expression of genes encoding Ca²⁺ signalling proteins and remodeling of Ca²⁺ proteins underlies cardiac muscle dysfunction in type 2 diabetic heart. [2010-2013]

Profs TE Adrian (PI), JFB Morrison, A Perrin, Dr R Hennig
The Expression of Genes in Neurons and the Tissues they Innervate During Development of Neuropathy in Two Animal Models of Type 2 Diabetes and in Human Tissues [Extension - 2014].

National Research Foundation Grant

Prof TE Adrian (PI)
Improving cancer therapy. [2011-2013]

Prof TE Adrian (PI), TA Rizvi
Characterization of a new tumor suppressor gene. [2013- 2015].

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

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

inflammatory drugs. [2011-2014]
 Profs W Lammers [PI], S Karam, J Huizinga
 Morphological, electrical & mechanical disturbances in stomach & small intestine of diabetic rats.

Prof M Ljubisavljevic, M Szolich, S Filipovic, F Al-Mughairbi. Long-term effects of noninvasive brain stimulation on food craving and brain plasticity. [2013-2015]

Others

UAEU-Sultan Qaboos University joint collaboration Grant

Prof A Nemmar (PI), Prof BH Ali (PI)
 Experimental studies on the interactions between pulmo-

nary exposure to particulate air pollution and acute renal failure: pathophysiologic mechanisms and influence of protecatant drugs. [2012-2015]

Satiogen Inc, San Diego, California, USA.

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

Joachim Leitner Foundation, Dubai

Prof TE Adrian (PI)
 Characterization of TTMP a new tumor suppressor gene.

Awards

Prof A Nemmar
 Excellence in Research Award
 2012-2013, College of Medicine and Health Sciences, UAEU (29/05/2013)

Prof A Nemmar
 Excellence in Teaching Award
 2012-2013, College of Medicine and Health Sciences, UAEU (29/05/2013)



2013

Physiology



Standing left to right:
 Dr N Hussain, Prof T E Adrian,
 Mr M A Qureshi, Mr P Rajagopalan,
 Prof A Nemmar, Prof W Lammers,
 Prof M Ljubisavljevic, Mr J Oommen,
 Mr S A Kutty, Ms N Nabil.
Seated: [from left to right]
 Ms Amal Al Haddad, Ms K Parekh,
 Prof M Fahim, Prof FC Howarth,
 Ms Priyadarshini Y, Ms B Stephen,
 Ms S Beegum, Ms A Javid.



Department of Psychiatry and Behavioural Sciences

Professor and Chair:

Prof HF Moselhy

Professors:

Prof K Dervic

Prof R Ghubash

Associate Professors:

Dr OT Osman

Assistant Professor:

Dr A Abdel Aty

Dr L Amiri

Dr M Awara

Research Technician:

Ms F Almogaddam

Mr S Yousef

Secretary:

Ms A Al Shamsi

Clerk II:

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) Prevalence of anxiety and depression in the Primary Care. (Dr O Osama, Dr A Shamsan, F Almogaddam).

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

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

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

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

(f) Free time activities and behavioural disorders among UAE children (S Yousef)

2. Personality, psychosocial and trans-cultural aspects of physical illness

(a) Body image disturbance in outpatients undergoing bariatric surgery. (Dr O Osman, E Emam, F Almogaddam).

(b) Behavioral, social and Functional morbidities among Bariatric Surgery patients in the UAE (Dr OT Osman, E Emam, F Almogaddam, Dr F Torab)

(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).

(e) Psychiatric comorbidity among children with learning disorders.(S Yousef)

(f) Psychosocial and environmental determinants of childhood behavioral disorders. (S Yousef)

3. Cultural aspects of psychiatry

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

(b) A survey of Psychodermatology for Middle Eastern Dermatologists (Dr OT Osman)

4. Collaborative Research

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

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

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

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

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

(f) Substance use, depression and suicidality in teenagers in the UAE (Dr K Dervic)

(g) Suicidal behavior and attitudes among university students (S. Yousef)

(h) Depression associates with factors influencing the carrier choices among university students (S Yousef)

(i) Depression and self-esteem among adolescents in UAE (S Yousef)

(j) DiAlert: a prevention program for overweight first degree relatives of type 2 diabetes patients: Emirate National –Community Based Trail (Al Kaabi J. [PI], S Yousef [co-PI]).

(k) Burnout among health care workers in the emirates of Abu Dhabi: Across-sectional study. (Dr H Moselhy, S Yousef).

(l) Internet addiction among Intern doctors in Cairo University Hospital (Dr H Moselhy)

5. Postgraduate Education and Training

(a) Arab Board Curricular development, credentialing and accreditation in General Psychiatry (Dr O Osman).

(b) Arab Board Curricular development in child & adolescent psychiatry (Dr O Osman).

6. Recent translation, development and validation of psychiatric instruments for use among Arabic speaking population.

- Mini-International Neuropsychiatric Interview (MINI) (Dr O Osman).

7. Biological Psychiatric Research:

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

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

- Association of hair heavy metals levels with childhood developmental and behavioral disorders (S Yousef).

- Association of blood heavy metals levels with childhood developmental and behavioral disorders (S Yousef).

- The Influence of A118G single nucleotide polymorphism of human Mu Opioid Receptor Gene and the MDR1 Gene in Egyptian patients with Tramadol Induced Seizure (Dr H Moselhy)

8. Addiction Research:

Epidemiology and qualitative Characteristics of Smoking Midwakh and other tobacco products in the UAE. A joint Partnership Collaboration with Abu Dhabi Health Authority (Dr OT Osman)

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Osman OT. (2013). Common Factors in Psychotherapy: The Clinician Invited Lecture in the Clinical Diploma in Applied Psychological Skills and Competencies Workshop. The National Rehabilitation Center, Abu Dhabi, November 15.

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Yousef S. (2013). Psychosocial factors associated with diabetes and obesity in children. The Fourth Conference of Your Health below Twenty- Obesity, Diabetes and Metabolic Syndrome, 20-21 May 2013, Sharjah, UAE.



Research Grants

Emirates Foundation Research Grant

Prof K Dervic [PI]
Substance use, depression and suicidality in teenagers in the UAE.

Others

Zayed Public Health Institute Grant

Drs R Mollica [PI], OT Osman [Co-PI]. Building Capacity and Partnership For Excellence in Mental Health: A joint UAEU Collaboration Between UAEU and Harvard H RTP (2011-2013).

Khalifa University of Science, Technology and Research Grant

Dr Khandoker A [PI], Prof H Moselhy [Co-PI], Mr S Yousef. Developing novel model for clinical biological patterns in depression from biosignal, biochemical and genetic measures.





Department of Radiology

Research Profile

Professor & Chair
Prof RD Langer
Associate Professor
Dr K FW Neidl – van Gorkom
Assistant Professor
Dr H Komáromy
Teaching Assistant
Dr T Al Mansour
Secretary
Ms KSM Mubarak Al Kaabi

Faculty members of the Dept. of Radiology focus on research in fields, relevant to the country's need, such as imaging in cancer, radio contrast media (RCM) research, assessment of genetic diseases and congenital malformations, neuro-imaging, and basic radiological research – including animal studies in collaboration with CMHS basic sciences departments and other UAEU colleges.

Prof. Ruth Langer's main research field is in the area of application of dual energy – and multi slice computed tomography (DECT, MSCT), esp. for assessment of renal stone disease and – composition in the UAE, as well as imaging in congenital malformations and skeletal dysplasias, of paramount interest in the UAE and the entire Gulf region. Furthermore her research field comprises basic research in radio contrast media, and the evaluation of nephrogenic systemic fibrosis (NSF), observed in patients with underlying renal – and other diseases. Her research portfolio covers animal studies on newly developed RCM and gadolinium bound contrast agents (GBCA), apparently responsible for NSF in humans. She is a member of the Oncology – and Genetics Research Priority Groups.

Dr. Klaus FW Neidl – van Gorkom's main fields of research are neuroimaging, head & neck-, molecular -, and cancer imaging, in line with specific needs of the UAE community. A current project is imaging in bariatric surgery in collaboration with the Department of Surgery. A long term project is the local development of sophisticated neuro-imaging like MRI spectroscopy in metabolic and genetic diseases and tumors, perfusion-imaging for stroke and tumors, tensor-imaging and functional MRI for behavioral diseases and tumors. Dr. Neidl – van Gorkom collaborates with the Neuroscience – and Cancer Research Priority Groups.

Dr. Hedvig Komáromy's research interest is in the field of neuroradiology, specifically white matter changes in patients suffering from multiple sclerosis, traumatic brain injuries, migraine, as well as degenerative disorders, like Alzheimer's and Parkinson's disease. For such projects excellent equipment has to be further upgraded in the teaching hospitals for improving patient care. A continuous project is the evaluation of trauma imaging after road traffic accident, one leading cause of death in the United Arab Emirates.

A long term project comprises the implementation of innovative MRI tools to enable prognostic judgment in patients with traumatic brain injury with the prospective of further advancing rehabilitation of trauma victims.

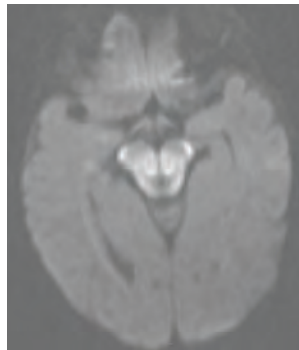


Fig. 1: Diffusion weighted image in a one-month-old child shows a diffusion restriction in myelinated white matter only; a case of methyl-syrup disease

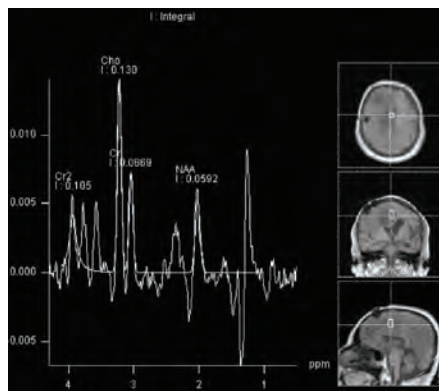


Fig. 2: Spectroscopy of a recurrent glioblastoma, low NAA- and high choline - and lactate peaks as indicators of a malignant brain tumor

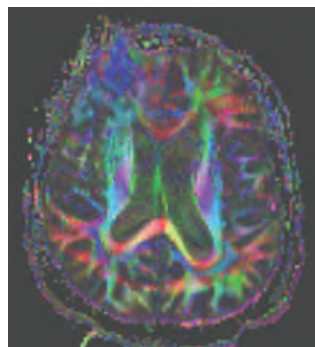


Fig. 3: Tractography of the same case as in fig. 2. Distortion and interruption of tracts right frontally (left upper part of the image) in comparison with the normal left frontal lobe

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Proceedings, Conferences, Web Sites and others

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RESEARCH GRANTS

Grant submissions are currently under review



2013

Radiology



Standing right to left:
**Dr N van Gorkom, Prof R Langer,
Dr H Komáromy**
(not included in the photo: Ms. Khaula Al Kaabi, Dr. Talib Al Mansour)

Department of Surgery



Research Profile

Faculty members in the Department have now increased from four (1999) to twelve currently, seven of whom are UAE nationals (two being Teaching Assistants training overseas), with five previously advertised senior positions (breast/endocrine surgery, minimal access surgery, neurosurgery, orthopaedics and otorhinolaryngology) yet to be filled. All Faculty members have had Consultant privileges Tawam Hospital and Professor Branicki, Abu Zidan and Al Mahmoud have privileges at Al Ain Hospital, Professor Branicki being the Intern Head of the Surgical Institute (March 2013 to date).

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. He has been an Instructor for 54 Advanced Trauma Life Support (ATLS) Courses, most as Course Director with involvement also in Advanced Trauma Care for Nurses (ATCN). These activities have generated data for presentation and publication. Collaboration with Assoc Prof Fawaz Torab led to a publication relating to peritoneal resorption capacity in an animal model of peritonitis. In addition, collaboration with Prof. Sherif Karam, Department of Anatomy, has involved experimental studies relating to gastric cancer conducted by a co-supervised Master's student, now awarded, under supervision in Prof Karam's laboratory. This work, funded by a research grant from the Terry Fox Foundation, has been published in two articles. 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

Professor & Chair

Prof Frank J Branicki

Professors

Prof Farouk Safi

Prof Fayez Hammad

Prof Fikri Abu-Zidan

Associate Professors

Dr Fawaz Torab

Dr Tahra Mahmoud

Assistant Professors

Dr Ali Al Belooshi

Dr Ali Jawas

Dr Saeed Al Thani

Dr Zuhair Al Fardan

Teaching Assistants

Dr Essa Al Essa

Dr Mohamed Ali Al Ali

Research Support

Mr Loay Lubbad

Administrative Support

Mr Abdulla C Jamal

Mr Cherukunnumal

Aboobacker

Ms Zahra Al Nasser

serves as the Chair of the Undergraduate Medical Curriculum Committee and Director of the Final Integrated Examination for undergraduates on completion of training. In June 2010 he was the recipient of the Distinguished Performance Award in the Faculty of Medicine and Health Sciences (CMHS) at UAE University, being inducted as a Fellow of the American College of Surgeons in San Francisco in October 2011.

Professor Farouk Safi

Prof. Farouk Safi's clinical interests in colorectal and hepatobiliary surgery have led to presentations at national and overseas meetings. His contributions in 2013 have included lectures in Dubai, and Fujairah in the UAE as well as in Jeddah (KSA). Currently, Prof Safi's clinical practice has generated data relating to surgical interventions for hepatic, pancreatic and colorectal malignancy and management of inflammatory bowel disease. Prof Safi directed the 2nd Liver Surgery workshop hosted at CMHS in March 2012 with local and overseas invited Faculty. Liver failure after hepatectomy, atypical appearance of hepatocellular carcinoma and rare liver tumors are new areas in which he has developed an interest.

Professor Fikri Abu Zidan

In 2013 Professor Fikri Abu-Zidan continued his focused research activities in the areas of trauma

management, injury prevention, 'point-of-care' critical care ultrasound and acute care surgery. He was effectively leading the Trauma Research Group of the CMHS till September 2013 when this transitioned to Dr Ali Jawas, Department of Surgery (CMHS). Collaborative work continued with the Departments of Community Medicine (CMHS), and Departments of Surgery, Critical Care, Emergency Medicine, and Orthopedics at Al Ain, Al Rahba and Tawam Hospitals. In 2013, Professor Abu-Zidan published 16 articles/ reviews in international refereed Journals and gave 19 invited lectures in international conferences. At present he is studying the impact of trauma training on clinical outcome, biomechanics of injury, methods of injury prevention, and 'point-of-care' emergency ultrasound. He has recently appointed Dr Hani Eid as a full time Senior Research Fellow in the Surgical Department to continue working on research stemming from the Road Traffic Collision Registry of Al-Ain City.

Professor Abu-Zidan was Chair of the Organizing Committee of the 9th Middle East Trauma Conference in 2013 in Abu Dhabi (October). At present he serves as the Statistical Editor for Hamdan Medical Journal. In February, 2013, Professor Fikri Abu-Zidan won the Distinction Research Award of the Emirate of Abu Dhabi (2012).



Professor Fayez Hammad

Promoted to Full Professor in 2012 Dr Fayez Hammad has clinical interests in minimally invasive surgery for renal stone disease and oncology in particular. He is the Founding Program Director for the recently established residency training program in Urology which is currently managed by HAAD (Health Authority of Abu Dhabi). Prof. Fayez Hammad completed, in collabora-

In collaboration with Dr Omran Bakoush from the Department of Internal Medicine, CMHS, Prof. Hammad has started a major study on the presence of Diabetes Mellitus on the recovery of kidney function following ureteric obstruction. This study involves measuring renal function serially, up to 30 days, following reversible 24-hr unilateral ureteric obstruction in normal and diabetic rats. In addition to hemodynamic



tion with Prof. Wim Lammers from the Department of Physiology, CMHS a study on the "Regional distribution and propagation of electrical activities in the isolated guinea-pig urinary bladder." This work was presented as a podium presentation at the American Urological Association Annual Meeting (Atlanta May, 2012), the research being funded by an Individual Research Grant from, CMHS, UAE University (2011). With Prof. Wim Lammers, Prof. Hammad has also commenced a new project on 'Slow wave conduction disturbances proximal and distal to ileal end-to-end anastomosis following ileocectoplasty'. The initial results were presented in the Joint International Neurogastroenterology and Motility Meeting (Bologna, Italy, September 2012).

From the experimental work performed at the Research Laboratory in the Department of Surgery (CMHS), Prof. Hammad also completed a study entitled "Curcumin provides incomplete protection of the kidney in ischemia-reperfusion injury". This was funded by an individual Grant from CMHS, United Arab Emirates University (2010). Another study on the effect of Aliskiren on renal dysfunction following ischemia-reperfusion injury was completed in 2013, funded, again by an individual Grant from CMHS, UAE University (2012).

and tubular renal function, the effect of both Diabetes Mellitus and ureteric obstruction on glomerular permeability will be studied. All these experimental studies were performed in collaboration with Dr. Loay Lubbad, research assistant.

In collaboration with Dr Hasan Elbiss, Department of Obstetrics and Gynaecology (CMHS), Prof. Hammad is participating in a study related to the incidence of urinary incontinence and prolapse in UAE women. It is expected that this work will result in three manuscripts. In addition, they completed a study on whether teaching patients clean intermittent self catheterization prior to anti-incontinence or prolapse surgery is necessary in women with voiding difficulty. The data were published in International Urology & Nephrology. The study was performed in collaboration with the Department of Obstetrics & Gynaecology (CMHS), Worcestershire Royal Hospital NHS Trust, UK. They also reported on a rare case of "placenta percreta invading urinary bladder and parametrium" which was accepted for publication in the Journal of Obstetrics and Gynaecology. In collaboration with Prof Abu Zidan, Prof. Hammad has published data on "Multiple authorship and article type in urology journals across the Atlantic: Trends over the past six decades". This

was performed in collaboration with Dr Shaban, Department of Medical Education (CMHS).

Associate Professor Fawaz Torab

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

Dr Torab is the 'Founder' and 'President' of the Obesity and Metabolic Surgery Interest Group in the UAE (OMSIG). This group was accredited in 2009 through the International Federation of Surgery for Obesity (IFSO) and the UAE has now become a member of this prestigious federation. In 2013, Dr. Fawaz was a founding member of the Gulf Obesity Surgery Society and was elected as General Secretary. He is also the representative of the UAE to the Medditterian and Middle East Endoscopic Surgery Society. He was elected in 2013 as the President of the Emirates Society of the

Laparoscopic-Endoscopic Surgery which functions under the umbrella of the Emirates Medical Association with 82 members throughout the UAE. Assoc Prof Torab has been a member of the Scientific Committee of Sheikh Hamdan Awards since 2006 and a member of the Higher Committee of Research, Ministry of Health, since 2010. He was awarded by the Undersecretary of the Ministry of Health UAE in May 2013 in appreciation for his contribution for the establishment of bariatric surgery in the UAE.

Assoc Prof Fawaz Torab's clinical interests are in acute care surgery, particularly pancreatitis and abdominal sepsis. There is a principal interest in laparoscopic procedures (bariatric surgery) for morbidly obese patients, whose co-morbidities affecting life style and life span can be ameliorated by surgical intervention. A prospectively collected large database relating to surgical procedures performed is accruing and Assoc Prof Torab has pioneered, in the UAE, the use of single incision laparoscopic surgery (SILS) for various procedures.

He has also continued oversight of basic and advanced laparoscopic surgical workshops and courses in the UAE and elsewhere for Residents in training and more experienced surgeons. Research interests in collaboration with departmental, basic sciences and hospital colleagues at Al Ain and Tawam Hospital include clinical outcomes of primary and revisional bariatric surgery and single port procedures, experimental models of peritoneal sepsis, experimental studies of treatment of breast cancer. In 2013 he has made significant contributions with presentations nationally in Al Ain, Abu Dhabi, Dubai and Fujairah and internationally in Turkey, Egypt and Austria.

Since 2005, he has conducted a prospective randomized study of open versus laparoscopic approach for repair of perforated duodenal ulcers with serial analysis of proinflammatory mediators. In collaboration with Prof Basel Ramadi, Chair of Medical Microbiology and Immunology (CMHS), and oncologists at Tawam Hospital, a patent has been submitted in the USA, through the UAEU for a potential new treatment strategy with studies of the effect of Manuka honey, alone or in combination with standard chemotherapy, on inhibition of proliferation and viability of an estrogen receptor-negative breast



cancer cell line. Assoc Prof Torab was appointed Associate Editor of the Journal of Minimally Invasive Surgical Science in 2012.

Assistant Professor Ali Jawas

Assistant Professor Ali Jawas successfully completed Residency training in General Surgery at the University of Toronto in 2004 and was appointed Assistant Professor in December 2004. Following his basic training in Vascular Surgery he has also completed a Fellowship in Toronto and rejoined us in Al Ain in October 2005. He is actively involved in the provision of vascular services in Tawam Hospital. Previously the Program Director for our Integrated General Surgery Residency Training Program Asst Prof Jawas 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 Dr Jawas contributed to writing the "Guidelines for the Management of Peripheral Arterial Disease in the GCC countries". In 2013 he made two presentations at Cardiovascular Conferences Oman and Turkey and as well as participating in meetings in the USA.

Another compelling area of interest is vascular trauma, as an Instructor he has actively participated in teaching many Advanced Trauma Life Support (ATLS) Courses of the American College of Surgeons. Publication of the first article on the epidemiology of vascular trauma following road traffic collisions in the UAE was followed by articles on "Management of war related vascular injuries: experience from the Gulf War" and a "Management algorithm for blunt renal artery occlusion in multiple trauma patients". In 2013, following election, he accepted the Headship of the Trauma Group at CMHS, UAE.

Assistant Professor Tahra AlMahmoud

Promoted to Associate Professor in June 2013, Dr Al Mahmoud completed residency training in Ophthalmology at McGill University, Montreal. Fellowship training in Ottawa was concerned with diseases of the anterior chamber of the eye, and a fellowship in Uveitis again at McGill was undertaken. 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 planning to continue her collaborations with the Department of Ophthalmology at Al Ain and Tawam Hospital conducting the ocular trauma research. Al Mahmoud has published 'A Code of conduct and professionalism for residents in training.

Assistant Professor Saeed Al Thani

Assistant Professor Saeed Al Thani completed Residency Training in Orthopaedics at the University of Toronto and was appointed Assistant Professor in July 2004. Following Fellowship training in 'sports injuries, hand and joint replacement surgery' at the same institution in Toronto he rejoined the CMHS 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 President of the Emirates Orthopedic Society, Chairperson UAE AO Chapter, and Vice President of the National Sports Medicine Committee. He is a member of World Orthopaedic Alliance and has been a member of the Scientific Committee of the Combined 33rd SICOT and 17th PanArab Orthopaedic Association meeting, hosting an Orthopaedic World Conference. Assist Prof Al Thani also holds membership of the Arab Board Examination/Licensing Committee and has been actively involved in teaching postgraduate orthopaedic surgery courses in Oman, the UAE and Switzerland. He presented his expertise in shoulder surgery in Beijing in 2012. Assist. Prof Al Thani has interests in platelet rich plasma in tendinopathy management, functional outcome studies following rotator cuff repair and cruciate ligament reconstruction. He is also involved in establishing a National Total Joint Replacement Registry.

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 in 2007. 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. Since 2009 he has been the Coordinator for the Junior Surgical Clerkship.

He participated with two presentations in the International Congress for Joint Reconstruction (ICJR) meeting 2013 in Dubai. He was chairperson for the hip and knee arthroplasty section of the 2nd Emirates International Orthopedic Congress held in Dubai. He had oversight of the scientific program with more than 70 local and international speakers. Asst. Prof Al Belooshi is also the Chair of the Malpractice Committee in Orthopedic Surgery for the Dubai Health Care Authority and Head of the Orthopaedic Malpractice Committee for the Health Authority Abu Dhabi (HAAD).

Assistant Professor Zuhair Al Fardan

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

Dr Al-Fardan was a member of Organizing and Scientific Committees and Invited Faculty for Dubai Derma (2012) and Abu-Dhabi Dermatology and Aesthetic Medicine (2013) conferences, having been an Invited speaker in the International Congress in Aesthetic, Anti-Aging and Medical Spa in Dubai in 2012.

Dr. Mohamad Al Ali

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

Dr. Essa Al Essa

Dr Essa showed great interest in learning research methodology under the direct supervision and mentoring of Professor Fikri Abu-Zidan . He has finished two research projects in trauma in a very short period that ended with two publications in high impact prestigious journals. One was published in World Journal of Surgery and the other in the Journal of Cardiothoracic Surgery. Furthermore, Dr Essa has recently finished his MBA in the field of "Change Management" which hopefully will encourage him to be involved in developing a course on Trauma Clinical leadership which is an important area for future trauma surgeons.

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 Prof. Fayez Hamad. Mr. Abdulla Jamal has been working for some years as a Departmental Secretary and continues to facilitate teaching activities in the



both Clerkships, workshops and various CME activities with dedicated service to a high standard, with assistance from Mr. Aboobacker in office duties. Miss Zahra Al Nasser was approved as Departmental Secretary in April 2013 having acquired experience at Tawam Hospital.

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) with four invited Faculty and staff from Canada and the USA. These courses are training Emirati graduates and others in trauma care and will help reduce the burden of permanent disabilities and mortality from motor vehicle crashes. In March 2008 the CMHS was the site for inauguration of the Advanced Trauma Provider Course for Nurses (ATCN) in the UAE. These activities run in concert with ATLS courses are made possible with the enthusiastic participation of Instructors from Al Ain and Tawam Hospitals. The Department has hosted 37 courses since 2004.

With the support of Faculty Administration it was possible to establish a Clinical Skills and Procedural Training Centre which is a multidisciplinary venture to foster training for undergraduates and particularly Residents in a variety of clinical disciplines. Assoc Prof Fawaz Torab has been 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 initiative has been made possible with donations from instrument and equipment manufacturers. A number of Interns and Residents in the General Surgery training program have successfully completed ATLS, FAST and laparoscopic training Courses.

Original Peer-Reviewed Scientific Articles

Abu-Zidan FM, Hefny AF, Mousa H, Torab FC, Hassan I. (2013). Camel-related pancreatico-duodenal injuries: a report of three cases and review of literature. *Afr Health Sci*, 762-7.

Abu-Zidan FM. (2013). The need for Trauma Systems in United Arab Emirates. *Hamdan Medical Journal* 2013; 6:49-50.

Al Bawardi A, Almarzooqi S, Torab FC. (2013). Helicobacter pylori in sleeve gastrectomies: prevalence and rate of complications. *Int J Clin Exp Med*, 6(2):140-3.

Al Eassa EM, Al-Marashda MJ, Elsharif A, Eid HO, Abu-Zidan FM. (2013). Factors affecting mortality of hospitalized chest trauma patients in United Arab Emirates. *J Cardiothorac Surg*, 8:57. [Epub ahead of print]

Al Eassa EM, Eid HO, Abu-Zidan FM. (2013). Effects of vehicle size on pedestrian injury pattern and severity: prospective study. *World J Surg*, 37(1):136-40.

Al Houqani M, Eid HO, Abu-Zidan FM. (2013). Sleep-related collisions in United Arab Emirates. *Accid Anal Prev*, 50:1052-5.

Elbiss HM, George S, Sidky I, Abu-Zidan FM. (2013). Gynaecological laparoscopy courses in the United Arab Emirates. *Afr Health Sci*, 393-401.

Elbiss HM, Osman N, Hammad FT. (2013). Social impact and health-care-seeking behavior among women with urinary incontinence in the United Arab Emirates. *Int J Gynaecol Obstet*, 122(2):136-9.

Fernandez-Cabezudo MJ, El-Kharrag R, Torab F, Bashir G, George JA, El-Taji H, Al-Ramadi BK. (2013). Intravenous administra-

tion of manuka honey inhibits tumor growth and improves host survival when used in combination with chemotherapy in a melanoma mouse model. *PLoS One*. 2013;8(2):e55993.

Grivna M, Barss P, Stanculescu C, Eid HO, Abu-Zidan FM. (2013). Child and youth traffic-related injuries: use of a trauma registry to identify priorities for prevention in the United Arab Emirates. *Traffic Inj Prev*, 274-82.

Grivna M, Eid HO, Abu-Zidan FM. (2013). Pediatric and youth traffic-collision injuries in Al Ain, United Arab Emirates: a prospective study. *PLoS One*. e68636.

Hammad FT, Al-Salam S, L Lubbad. (2013). Does aliskiren protect the kidney following ischemia reperfusion injury? *Physiol Res*, 20;62(6):681-90.

Hefny AF, Idris K, Eid HO, Abu-Zidan FM. (2013). Factors affecting mortality of critical care trauma patients. *Afr Health Sci*, 731-5.

Hefny AF, Salim EA, Bashir MO, Abu-Zidan FM. (2013). An unusual stab wound to the buttock. *J Emerg Trauma Shock*, 298-300.

Jawas A, Abbas AK, Nazzal M, Albader M, Abu-Zidan FM. (2013). Management of war-related vascular injuries: experience from the second gulf war. *World J Emerg Surg*, 1;8(1):22.

Layer P, Dellinger EP, Forsmark CE, Lévy P, Maraví-Poma E, Shimosegawa T, Siriwardena AK, Uomo G, Whitcomb DC, Windsor JA, Petrov MS. (collaborators) Abu Hilal M, Abu-Zidan FM, et al. (2013). Pancreatitis Across Nations Clinical Research and Education Alliance (PANCREA). [Determinant-based classification of acute pancreatitis severity. International multidisciplinary classification of acute pancreatitis severity: the 2013 German edition]. *Z Gastroenterol*, 544-50.

Maraví-Poma E, Dellinger P E, Forsmark CE, Layer P, Lévy P, Shimosegawa T, Siriwardena AK, Uomo G, Whitcomb DC, Windsor JA, Petrov MS. (collaborators) Abu Hilal M, Abu-Zidan FM, et al. (2013). Pancreatitis Across Nations Clinical Research and Education Alliance (PANCREA). International Multidisciplinary Classification of Acute Pancreatitis Severity: The 2013 Spanish Edition. *Med Intensiva*. [Epub ahead of print]

Ortashi O, Virdee J, Hassan R, Mutrynowski T, Abu-Zidan FM. (2013). The practice of defensive medicine among hospital doctors in the United Kingdom. *BMC Med Ethics*;14:42. [Epub ahead of print]

Ur Rahman M, S Abuhasna S, Abu-Zidan FM. (2013). Care of terminally-ill patients: an opinion survey among critical care health-care providers in the Middle East. *African Health Sciences*; 13(4): 893 – 898.



Published Abstracts, Letters and Correspondence

Abu-Zidan FM, Elbiss HM, Raheel H, George S. (2013). Gynaecological laparoscopy courses in United Arab Emirates- Follow up questionnaire. 1st Annual MESGE Congress in Conjunction with the Turkish Society of Gynecological Endoscopy, Antalya.

Abu-Zidan FM, Jawas A, Abbas AK, Nazzal M, Albader M. (2013). Management of war-related vascular injuries: experience from the second Gulf War. *World J Emerg Surg*. 8:22.

Abu-Zidan FM. (2013). Commentary: Temporary rapid bowel ligation as a damage control adjunct. *J Surg Res*, 185(1):e1-2.

Conference Invited Lectures and Presentations

Abu-Zidan FM, Eid HO, Fikri M. (2013). Trauma Registries as a prevention tool. 3rd Emirates Emergency and Trauma Conference, Fujairah, United Arab Emirates.

Abu-Zidan FM, Mohammad A, Branicki F. (2013). Educational and Clinical Impact of Advanced Trauma Life Support (ATLS) Courses: A Systematic Review. 3rd Emirates Emergency and Trauma Conference, Fujairah, United Arab Emirates.

Abu-Zidan FM. (2013). Adrenal crisis. 3rd International Clinical Conference on Emergency Medicine, Kuala Lumpur, Malaysia. Abu-Zidan FM. (2013). Basic ultrasound physics. 9th Middle East Trauma Conference, Abu-Dhabi, UAE.

Abu-Zidan FM. (2013). Breaking the barriers-changing the culture of research. 1st Qatar Surgical Society Symposium & 3rd Annual ATLS MENA Conference, Doha, Qatar.

Abu-Zidan FM. (2013). Case scenarios of FAST in trauma patients. 9th Middle East Trauma Conference, Abu-Dhabi, UAE.

Abu-Zidan FM. (2013). Detection of pericardiac fluid. 9th Middle East Trauma Conference, Abu-Dhabi, UAE.

Abu-Zidan FM. (2013). Educational and Clinical Impact of Advanced Trauma Life Support (ATLS) Courses: A Systematic Review. Multi-stage Systematic Review Synthesis Course. Riyadh, Saudi Arabia.

Abu-Zidan FM. (2013). FAST practical tips. 9th Middle East Trauma Conference, Abu-Dhabi, UAE.

Abu-Zidan FM. (2013). How to read a trauma chest X-ray. 9th Middle East Trauma Conference, Abu-Dhabi, UAE.

- Abu-Zidan FM. (2013). Management of Necrotizing Fasciitis. 3rd Emirates Emergency and Trauma Conference, Fujairah, United Arab Emirates.
- Abu-Zidan FM. (2013). Management of Necrotizing Fasciitis. 9th Middle East Trauma Conference, Abu-Dhabi, UAE.
- Abu-Zidan FM. (2013). Minimizing Missed War-related Injuries. 9th Middle East Trauma Conference, Abu-Dhabi, UAE.
- Abu-Zidan FM. (2013). Minimizing Missed War-related Injuries. Mass Incident Response Exercise Course, Kuala Lumpur, Malaysia.
- Abu-Zidan FM. (2013). Pediatric trauma in the GCC countries. Pediatric Emergencies, Dubai.
- Abu-Zidan FM. (2013). Point of care ultrasound as a critical decision making tool for the acute abdomen. 3rd Emirates Emergency and Trauma Conference, Fujairah, United Arab Emirates.
- Abu-Zidan FM. (2013). Point of Care Ultrasound, Where do we stand? 9th Middle East Trauma Conference, Abu-Dhabi, UAE.
- Abu-Zidan FM. (2013). Role of Pre-hospital Ultrasound in Disaster Situations. Mass Incident Response Exercise Course, Kuala Lumpur, Malaysia.
- Abu-Zidan FM. (2013). The Trauma Peer Review Process Does it improve outcome? 9th Middle East Trauma Conference, Abu-Dhabi, UAE.
- Abu-Zidan FM. (2013). The trauma peer review process: should all disciplines in the hospital adopt it? 1st Qatar Surgical Society Symposium & 3rd Annual ATLS MENA Conference. Doha, Qatar.
- Al Eassa EM, Al-Marashda MJ, Elsherif A, Eid HO, Abu-Zidan FM. (2013). Factors affecting mortality of hospitalized chest trauma patients. Trauma Association of Canada Conference, Whistler, Canada.
- Al Fardan Z. (2013). All about Fat Graft. Abu Dhabi Dermatology and Aesthetic Medicine conference, Dubai, UAE.
- Al Mahmoud T, AlFazari A, Branicki FJ. (2013). Guidelines on a Code of Ethics and Professionalism for Residents Undertaking Postgraduate Medical Education. Meeting of American College of Surgeons, UAE Chapter of the American College of Surgeon (ACS/ICS meetings). Dubai, UAE.
- Al Mahmoud T, Barss P. (2013). Eye and Associated Facial Structures Injuries: A Review on Impact of Safety Belts and Airbags. 15th Emirates Ophthalmology Congress 2013 (EOC 2013), Dubai, UAE.
- Al Mahmoud T, Kulkarni SV, Priest D, Taylor SEJ, Mintsoulis G, Jackson BW. (2013). Long Term Visual and Refractive Outcomes Following Surface Ablation Techniques in a Large population for Myopia Correction. 15th Emirates Ophthalmology Congress, Dubai, UAE.
- Al Mahmoud T, Munger R, Jackson BW. (2013). Comparison Between Advanced Corneal Surface Ablation and Femtosecond Thin Flap LASIK: Clinical Outcome and Changes in Higher Order Aberrations for Myopia. 15th Emirates Ophthalmology Congress, Dubai, UAE.
- Al Mahmoud T, Quinlan-Davidson S, Shenouda G, Evans M, Mansour M, Edelstein C, Pond G, Deschênes J. (2013). Intra-operative Echography Assisted Radioactive Iodine-125 Plaque Placement for Choroidal Melanoma: Visual Acuity Outcome. 15th Emirates Ophthalmology Congress, Dubai, UAE.
- Al Mahmoud T, Shen Y. (2013). Eser Adiguzel, Mark Cohen, Avi Wallerstein. Distribution of Keratoconus Match Index and Keratoconus Match Probabilities in a Normal Refractive Surgery Population. European Society of Ophthalmology, Copenhagen.
- Al Mahmoud T, Shen Y, Adiguzel E, Cohen M, Wallerstein A. (2013). Distribution of Keratoconus Match Index and Keratoconus Match Probabilities in a Normal Refractive Surgery Population. 15th Emirates Ophthalmology Congress, Dubai, UAE.
- Al Mahmoud T, Shen Y, Adiguzel E, Cohen M, Wallerstein A, Index KM, Keratoconus. (2013). Match Probabilities in Normal and Keratoconic Eyes. Refractive Surgery 2013: Perfecting Vision: The International Society of Refractive Surgery Annual Meeting, New Orleans, US.
- Al Mahmoud T. (2013). Update on local and systemic treatments for non-infectious posterior uveitis. 15th Emirates Ophthalmology Congress, Dubai, UAE.
- Ammori M, Hani H, Abu-Zidan FM. (2013). Lower limb and associated injuries in frontal-impact road traffic collisions. 14th European Congress of Trauma and Emergency Surgery, Lyon, France.
- Branicki FJ. (2013). A Code of Ethics and Professionalism for Residents in Postgraduate Training. 2nd Meeting of UAE Chapter, American College of Surgeons, Dubai, UAE.
- Branicki FJ. (2013). Camel-related Injuries: A prospective study of 212 patients. The 3rd Emergency Surgery and Trauma Conference, Fujairah, UAE.
- Branicki FJ. (2013). Camel-related Injuries: A prospective study of 212 patients. 14th Annual Scientific Conference and AGM, College of Surgeons of East, Central and Southern Africa (COSECSA), Harare, Zimbabwe.
- Branicki FJ. (2013). Subspecialization in Gastric Surgery: a case for risk reduction?. 10th International Gastric Cancer Congress, Verona, Italy.
- Eid HO, Grivna M, Abu-Zidan FM. (2013). Epidemiology of burns in the UAE: Lessons for prevention. 3rd Emirates Emergency and Trauma Conference, Fujairah, United Arab Emirates.
- Elbiss HM, George S, Sidky I, Abu-Zidan FM. (2013). Gynaecological

- laparoscopy courses in the United Arab Emirates. 1st Annual MESGE Congress in Conjunction with the Turkish Society of Gynecological Endoscopy, Antalya.
- Hammad FT. (2013). Upper Urinary Tract Obstruction: Effects on the Kidney & Ureter; 2st Annual Meeting of Emirates Urological Society, Abu Dhabi, UAE.
- Hammad FT. (2013). Urological injuries during obstetric and gynaecologic surgery, 9th Middle East Trauma Conference, Abu Dhabi, UAE.
- Hammad FT. (2013). Management of Pediatric Urolithiasis. 1st Emirates Urological Society Expert Forum/ Pediatric Urology, Dubai, UAE.
- Hammad FT. (2013). Management of Stone Disease in Children. 6th Middle East Update in Urology Conference, sponsored by Cleveland Clinic, Dubai, UAE.
- Hammad FT. (2013). Missed Ureteric Injuries; 3rd Emirates Emergency Surgery & Trauma conference, Fujairah, UAE.
- Hammad FT. (2013). Prevalence, Social Impact & Healthcare Seeking Behavior in women with urinary incontinence in the Gulf Countries. Emirates Urological Society Lecture: 9th Pan Arab Continence Society Meeting in collaboration with the International Continence Society & International Children Continence Society, Dubai, UAE.
- Hammad FT. (2013). Small Renal Mass: An Educational Case. Emirates Urological Society, Al Ain Urology Club, Al Ain, UAE.
- Hammad FT. (2013). The epidemiology of genitourinary trauma in the UAE, 2nd Emirates Urological Society Expert Forum/Pediatric Urology, Abu Dhabi, UAE.
- Hefny A, Abbas A, Abu-Zidan FM. (2013). Geriatric Fall-related Injuries in the United Arab Emirates. 14th European Congress of Trauma and Emergency Surgery, Lyon, France.
- Hefny AF, Abu-Zidan FM. (2013). Animal-related injuries in the United Arab Emirates. 14th European Congress of Trauma and Emergency Surgery, Lyon, France,
- Jawas A. (2013). Accuracy of duplex ultrasound comparing to fistulogram on AC fistula assessment. 14th Congress of Asian Society for Vascular Surgery & 16th Congress of Turkish Society for Vascular and Endovascular Surgery, Istanbul, Turkey.
- Jawas A. (2013). Management of war related vascular injuries. The 3rd Emergency Surgery and Trauma Conference, Fujairah, UAE.
- Jawas A. (2013). Vascular trauma during the Gulf War: a single centre experience. Oman International Vascular Conference in conjunction with 7th Annual Meetings of Gulf Vascular Society and Saudi Society for Vascular Surgery, Muscat, Oman.
- Kayyal MY, Taha M, Saleh A, Alafari H, Torab FC. (2013). Management of leaks post sleeve gastrectomy. Proceeding of Society of American Gastrointestinal and Endoscopic Surgeons.
- Kayyal, MY, Torab FC. (2013). Management of leak post sleeve gastrectomy. Obes. Surg. Proceeding of the 18th World Congress of International Federation for Surgery of Obesity & Metabolic Disorders.
- Torab FC, Kayyal MY, El Slahat H, Branicki F. (2013). Single incision laparoscopic surgery (SILS) in bariatric surgery: Is it safe and feasible? Proceeding of 10th International Congress & Training Workshop of the Egyptian Society of Laparoscopic surgery.
- Torab FC, Kayyal MY, Elsalhat H, Branicki F. (2013). Evaluation of the use of single incision laparoscopic surgery (SILS) in bariatric surgery. Proceeding of Society of American Gastrointestinal and Endoscopic Surgeons.
- Torab FC, Kayyal MY, Taha M, Saleh A, Branicki F. (2013). The spectrum of revision in bariatric surgery in tertiary referral center. Proceeding of 10th International Congress & Training Workshop of the Egyptian Society of Laparoscopic surgery.
- Torab FC, Kayyal, MY. (2013). Evaluation of the use of single incision laparoscopic surgery (SILS) in bariatric surgery. Proceeding of ISW 13.
- Torab FC, Kayyal, MY. (2013). Evaluation of the use of single incision laparoscopic surgery (SILS) in bariatric surgery. 18th World Congress of International Federation for Surgery of Obesity & Metabolic Disorders.
- Torab FC. (2013). Al Ain Medical Human Research Ethics Committee: An Example of collaboration between different Medical Institution in Al Ain. Emirates Oncology Conference. Abu Dhabi, UAE.
- Torab FC. (2013). Complication after bariatric surgery. Study Day in Surgery, Fujairah, UAE.
- Torab FC. (2013). Constitution for the Gulf society of Obesity and Metabolic Surgery. 2013-SASMBs: International Metabolic and Bariatric Surgery Meeting, Dubai, UAE.
- Torab FC. (2013). Evaluation of the use of single incision laparoscopic surgery (SILS) in bariatric surgery. 18th World Congress of International Federation for Surgery of Obesity & Metabolic Disorders. Istanbul, Turkey.
- Torab FC. (2013). Gastric bypass as a gold standard for metabolic surgery. 12th Middle East Surgery Conference, Dubai, UAE.
- Torab FC. (2013). Importance of setting standards in metabolic surgery in a country of high prevalence of diabetes. The Emirati-German Healthcare congress, Dubai. UAE.
- Torab FC. (2013). Leakage after sleeve gastrectomy. 10th Inter-

national Congress & Workshop of the Egyptian Society of Laparoscopic Surgery, Cairo, Egypt.

Torab FC. (2013). Management of leak post sleeve gastrectomy. 18th World Congress of International Federation for Surgery of Obesity & Metabolic Disorders. Istanbul, Turkey.

Torab FC. (2013). Methods of haemostasis in Minimally Invasive Surgery (MIS). Haemostasis workshop, Al Ain, UAE.

Torab FC. (2013). Preliminary results of paediatric bariatric surgery in Al Ain. The 7th Annual Tawam International Paediatric Conference. Al Ain, UAE.

Torab FC. (2013). Results of bariatric surgery in Al Ain. 8th International Conference of Al

Noor Hospital, Gastroenterology Update, Abu Dhabi, UAE.

Torab FC. (2013). SILS Bariatric surgery. 10th International Congress & Workshop of the Egyptian Society of Laparoscopic Surgery, Cairo, Egypt.

Torab FC. (2013). SILS bariatric surgery: technique and results. The 1st International Emirates Conference on Minimally Invasive Surgery and NOTES. Abu Dhabi, UAE.

Torab FC. (2013). SILS. 12th Middle East Surgery Conference, Dubai, UAE.

Torab FC. (2013). Surgery for Morbid Obesity. The 18th Annual Conference on diabetes and Endocrine Disorders, Al Ain, UAE.

Torab FC. (2013). The role of single incision laparoscopic

surgery (SILS) in bariatric surgery. 21st International Congress of the European Association for Endoscopic Surgery (EAES) P490. Vienna, Austria.



RESEARCH GRANTS

CMHS Research Grant

Prof FT Hammad [PI], Mr L Lubbad
The effect of diabetes mellitus on the serial recovery of renal dysfunction following reversal of 24-hr unilateral ureteric obstruction in the rat



2013

Surgery



*Standing left to right:
Mr C Aboobacker, Mr L Lubbad,
Prof F Hammad, Mr A Jamal,
Dr K Al Awadhi
Seated left to right:
Dr H Eid, Prof F Branicki,
Prof F Abu-Zidan, Dr F Torab*

Research Priority Groups

Diabetes and Cardiovascular

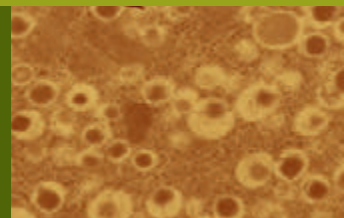
Genetics and Development

Immunology and Immunoregulation

Neurosciences

Trauma

Diabetes and Cardiovascular Research Priority Group



Introduction

The Diabetes and Cardiovascular Research Priority Group (DCRG) was established in the autumn of 2001 alongside other research priority groups. The DCRG works closely with the Al Ain Diabetes Research Group and the Emirates Diabetes Society in many activities across the core members.

Aims of the Group

Facilitate diabetes and cardiovascular research in the College of Medicine.

Enhance basic and clinical 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

19th Annual Workshop on Diabetes Mellitus and Endocrine disorders

The DCRG organized a one-day Conference on "Diabetes Mellitus and Endocrine Disorders" on Saturday, April 2, 2014 at the College of Medicine & Health Sciences, United Arab Emirates University. The Conference attracted more than 300 delegates across the UAE and abroad. In addition to the local delegates, we had speakers from abroad including, Dr. Ebaa Al-Ozairi, Assistant Professor and Consultant Endocrinologist, Faculty of Medicine, Kuwait University, Kuwait.

The Symposium covered different areas of diabetes including:

- Overview of the management of Type 2 diabetes by Prof.

Core members:

Dr Juma Al Kaabi (Chair)

Prof Abdu Adem

Prof Chris Howarth

Dr Syed Mehboob Ali Shah

Prof. Thomas Adrian

Prof M Agarwal

Dr Fatma Al Maskari

Prof El-Sadig Kazzam

Prof Farouk Safi

Dr Rajesh Mohanraj

Prof Ernest Adeghate

In addition to the core members, group membership includes more than 40 other faculty members from within the CMHS. Dr. Juma Al Kaabi was unanimously elected as the Chair of the Group in March, 2014, taking over the position from Prof. Adeghate.

Hussein Saadi, Consultant Endocrinologist, Chief, Medical Subspecialties Institute, Cleveland Clinic, Abu Dhabi.

- The place of Incretins (DPP-4 inhibitors and GLP-1 RA) in the management of diabetes; review of the present guidelines by Dr. Ahmed Hassoun, Consultant Endocrinologist, Dubai Diabetes Center

- Gestational DM: from Screening to Management by Dr. Bashir Taha Salih, Consultant Obstetric Medicine, Al-Corniche Hospital Abu Dhabi

- Recent Research Highlights in diabetes management: relevance to clinical practice by Prof. Salah Gariballa by Professor of Medicine, Department of Internal Medicine, CMHS

- Overview of the Management of Obesity by Dr Ebaa Al Ozairi, Assistant Professor at Kuwait University and Consultant Diabetes and Endocrinology

- Thyroid disorders during pregnancies by Dr. Ali Khalil, Consultant Endocrinologist, Imperial College Abu Dhabi

- Thyroid disorders in children; special features of the highs and the lows! by Dr. Asma Deeb, Consultant Paediatric Endocrinologist, Al Mafraq Hospital

- Haemochromatosis and Endocrinopathies by Dr. Bachar Afandi, Consultant Endocrinologist, Tawam Hospital,

- Overview of the diabetic foot care by Dr. Juma Al Kaabi, Associate Professor of Medicine & Consultant Endocrinologist

Hand on practical sessions were also conducted to familiarize nursing staff with empowering patients with diabetes to improve self-management education and gain the knowledge and skills needed to modify their behavior, self-management of the disease and its related conditions .

Themes of research include the following

Neuropeptides and neurotransmitters in diabetes mellitus

Trace elements in diabetes mellitus

Immunology of diabetes mellitus

Clinical pharmacology of diabetes mellitus

Insulin and glucagon secretion in health and disease

Effects of diabetes mellitus on cardiac muscle function

Epidemiology of diabetes mellitus

Diabetic complications (nephropathy, neuropathy and angiopathy)

Lipids in human and experimental diabetes

Metabolic syndrome and obesity

Pancreas transplantation

Hypertension

Gestational diabetes

Grants obtained by members

- Exploring the Influence of expatriate domestic Workers on the physical, emotional and behavioural well-being of Emirati children- Federal Demographic Council

- Electrical remodelling of the atrioventricular node in diabetes- UAE University Research Grant

- Progressive changes in expression of genes encoding Ca²⁺ signalling proteins and remodelling of Ca²⁺ proteins underlies cardiac muscle dysfunction in type 2 diabetic heart-Emirates Foundation Grant

- Effects of exercise training on heart function in the Goto-Kakizaki type 2 diabetic rat"- UAE University Interdisciplinary Grant.

- Alterations in calcium signalling and cardiac muscle proteins underlie contractile dysfunction in Zucker diabetic fatty rat heart". FMHS Project Grant

- Remodeling of Ca²⁺ transport proteins underlies cardiac muscle dysfunction in the Zucker diabetic fatty rat Sheikh Hamdan Bin Rashid Al Maktoum Award for Medical Sciences Grant

- Effect of embryonic pancreatic beta cell transplantation on the metabolic parameters of diabetic rats -Emirates Foundation Grant

- Localization of apolipoprotein A-1 and its effect in the pancreas of a rodent model of type 2 diabetes- FMHS Research Grant

- The Role of TNF- α in experimental autoimmune neuritis: a model of inflammatory demyelinating polyneuropathy-FMHS Research Grant

- Search for Novel Anti-diabetic drug candidates Emirates Foundation Grant

- Several UPAR and NRF Grants were also awarded

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 30 diabetes-related papers in top quality peer-reviewed journals including but not limited to BMC Public Health, Molecular and Cellular Biochemistry, Experimental Physiology, Asia Pacific Journal of Clinical Nutrition, PLoS One, Nutrients, Nutrients and Metabolism, Lipids in Health & Disease, Medical Hypotheses, Current Medicinal Chemistry, Cell Physiology and Biochemistry, Peptides, Journal of Obstetrics and Gynecologic Archives of Gynecology and Obstetrics, Journal of Applied Toxicology, International Journal of Endocrinology, Current Alzheimer Disease. The cumulative impact factor of these journals exceeded 34 (See Departments of Anatomy, Biochemistry, Community Medicine, Pathology, Pharmacology, Physiology, Psychiatry, Internal Medicine and Medical Microbiology for relevant publications).

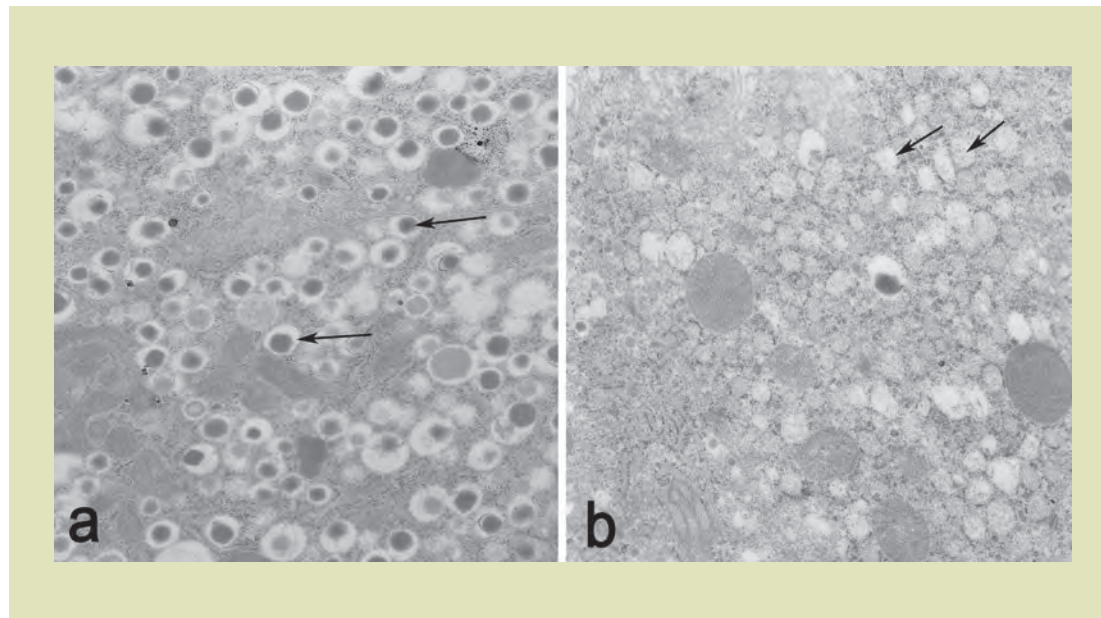


Figure Legend

Electron micrographs, showing pancreatic beta cell of (a): normal, and (b): diabetic rats. Note degranulation of secretory granules (arrows) in the beta cell of diabetic rat pancreas. X 14,000.



Genetics and Development Research Group

Mission of the Group

Consanguineous marriages are prevalent in UAE population and therefore recessively inherited single gene disorders occur more frequently in the UAE than in other populations with over 170 recessive disorders have been reported so far. In addition, the incidence of multifactorial diseases such as type 2 diabetes, obesity, certain cancers, neurodegenerative and cardiovascular diseases have been steadily rising in the UAE over the past few decades. This is mainly due to the rapid socioeconomic growth and a significant rise in life expectancy as a result of improved health care systems. The rapid increase in the prevalence of multifactorial diseases also suggest genetic predisposition to those diseases revealed by rapid changes in lifestyle including diet. The mission of the Genetics and Development Research Priority Group is to provide the highest quality research into the basis of genetic diseases prevalent in UAE, provide high quality health care and education. In support of its mission, the group strives to (1) define the extent of genetic, developmental and multifactorial disorders in the country; (2) be the leading source of research into the causes and pathogenesis of these disorders and (3) 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 of the Genetics and Development Research Priority Group are affiliated to different departments within the College of Medicine and Health Sciences. The current membership of the group includes:

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

Research interests: 1) Elucidation of the molecular and cellular defects underlying genetic disorders in the UAE and Arab populations; 2) Exploring novel therapeutic targets for genetic disorders and 3) Defining alleles and genotypes of genes underlying drug metabolism among Emiratis.

Prof. Yousef M. Abdulrazzaq (Paediatrics Department); Professor Emeritus

Research interests: Neonatology, birth defects, metabolic disorders and asthma.

Prof. Thomas E. Adrian (Physiology Department); Professor

Research interests: 1) Identification of diabetes susceptibility genes in UAE nationals; 2) Identification of genes involved in skeletal muscle cancer cachexia; 3) Characterization of novel genes involved with cancer growth and invasion

Prof. Lihadh Al-Gazali (Paediatrics Department); Professor of Clinical Genetics 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 and the Assistant Dean for Clinical Affairs

Research interests: Biochemical genetics

Dr. Ahmad Hassan Al-Marzouqi (Biochemistry Department); Associate Professor and the Director of Research and Sponsored Projects at the Office of the Deputy Vice Chancellor for Research and Graduate Studies

Research interest: Protein Complexes that Modify Chromatin for Transcription Regulation

Dr. Suhail Al-Salam (Pathology Department); Associate Professor

Research interests: Molecular pathology of cancers and cardiovascular conditions in UAE

Dr. Samir Attoub (Pharmacology and Therapeutics Department); Associate Professor

Research interest: Cellular signaling in cancers

Prof. Keith Bagnall (Anatomy Department); Professor

Research Interest: The aetiology of adolescent idiopathic scoliosis

Prof. Salim Bastaki (Pharmacology and Therapeutics Department); Professor

Research interests: 1) Oxidative phenotyping and genotyping UAE nationals using antidepressant drugs 2) Teratogenic effects of antiepileptic drugs

Dr. Srdjan Denic (Internal Medicine Department); Associate Professor

Research interests: (1) Effect of human inbreeding on selection of alpha-thalassemia (2) The genetics of neutropenia

Prof. Omar M. El-Agnaf (Biochemistry Department); Professor

Research interest: The role of protein misfolding and aggregation in neurodegenerative diseases

Dr. Eyad Elkord (Medical Microbiology and Immunology Department); Assistant Professor

Research interest: Cancer Immunology and Immunotherapy with special interest in the role and function of immunosuppressive cells (T regulatory cells and myeloid-derived suppressor cells) in cancer.

Dr. Starling Emerald (Anatomy Department); Assistant professor

Research interest: Epigenetics in metabolic syndrome and obesity

Prof. Sehamuddin Galadari (Biochemistry Department); Professor of Biochemistry and Molecular Cell Biology, Advisor to the DVC for Academic Affairs

Research interest: Cellular signaling and human disease

Prof. Ruth Langer (Radiology Department); Professor and Chair

Research interest: Imaging of patients with congenital syndromes and malformations

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

Research interest: Prenatal diagnosis and fetal medicine

Prof. Hassib Narchi (Paediatrics Department); Professor

Research interests: Causes and mechanisms of common diseases in Middle Eastern populations

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

Research interest: Retroviral/lentiviral vectors for human gene therapy.

Dr. Sami Shaban (Medical Education); Associate Professor

Research Interests: Biomedical informatics, health registries, e-learning, database-driven website design and relational databases

Prof. Abdul-Kader Souid (Paediatrics Department); Professor and Chair

Research Interests: 1) Analytical biochemistry; 2) Investigating effects of drugs and toxins on cellular bioenergetics and mitochondrial function

Dr. Jehan Suleiman (Paediatrics Department); Assistant Professor and Paediatric Neurologist

Research Interests: 1) Paediatric Encephalitis in the UAE; 2) Bone health and vitamin D levels in children on chronic use of antiepileptic drugs in UAE

Publications and Grants

Please refer to the list of publications and grants for individual members of the group in their respective departments.

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
- Weill Cornell Medical College, Doha, Qatar

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

- Cincinnati Children’s Hospital, OH, USA
- University of Ottawa, Canada
- Medical University of South Carolina, Charleston, South Carolina

PhD in Genetics Program

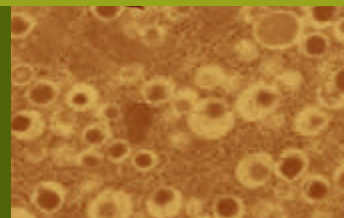
The group has supported the establishment of an interdepartmental PhD program in Genetics. The compulsory courses for the program are provided by the Departments of Pathology (2 courses), Paediatrics (1 course) and Biochemistry (1 course). One PhD student (Dr Nadia Awni Akawi) has completed her PhD this year and there are two students currently enrolled in this program.

On December 19, 2013 UAEU held its first PhD dissertation defense by Nadia Awni Akawi, a PhD candidate in the College of Medicine and Health Sciences. Ms. Akawi enrolled in the Genetics PhD program in the first cohort of students in Spring 2010 and her dissertation was on “Characterizing the Genetic Bases of Autosomal Recessive Disorders”. Dr Akawi was supervised by Professors Bassam Ali and Lihadh Al-Gazali. The examination committee included Professor Andrew O.M. Wilkie from the University of Oxford in the UK and Professor Abdul-Kader Souid from the College of Medicine and Health Sciences, UAE University, UAE.



*From left to right:
Professor Bassam Ali,
Professor Andrew O.M.
Wilkie, Dr Nadia Awni
Akawi, Professor Lihadh
Al-Gazali, Professor
Abdul-Kader Souid*

The Immunoregulation and Infection Research Priority Group



The major aim of the Immunoregulation and Infection Research Priority Group is to promote basic and clinical research in the fields of immunology, microbiology, and related disciplines. Through its wide membership encompassing investigators from a diverse number of departments in the College of Medicine and Health Sciences and affiliated hospitals, the Group aims to facilitate interdepartmental collaborations in basic and clinical research related to immunological disorders, infectious diseases, and microbial pathogens.

Members of the group attained numerous research grants from Terry Fox Fund for Cancer Research, Sheikh Hamdan Award for Medical Sciences, National Research Foundation, and from various UAEU Programs, i.e. UAEU program for Advanced Research (UPAR), UAEU Interdisciplinary Center-based Research, UAEU Startup Competition and CMHS research Grants. They published in altogether 48 PubMed listed publications during 2013, and they presented their research results at several prestigious international conferences.

The group also organizes research seminar and undertakes sponsorship of international and regional visitors and speakers to CMHS. The following seminars were hosted by the group in 2013:

6th February 2013 **“The Role of Plasmids in the International Spread of Multiresistant Gram-negative Bacteria”** by **Dr. Alessandra Carattoli** Research Director, Department of Infectious, Parasitic and Immune-Mediated Diseases, Istituto Superiore di Sanità, Rome, Italy.

17th February, 2013 **“XPclad Nanoreformulation of Cisplatin for Prostate Cancer”** by **Professor James Lillard**, Professor of Microbiology, Biochemistry & Immunology, Director, Morehouse School of Medicine Cancer Research Program, Atlanta, Georgia, USA

26th February 2013 **“Viral Attack and Cellular Defense: The Complex Interplay Between HIV-1 and APOBEC-3G, an Innate Cellular Defense”** by **Roland Marquet**, PhD Director of Research French National Centre for Scientific Research (CNRS) Université de Strasbourg, Strasbourg, France

Group Leader:

Professor Basel al-Ramadi
(until March, 2013)

Dr. Agnes Sonnevend
(from April, 2013)

Core Members:

Professor Basel al-Ramadi
Professor Eric Mensah-Brown
Professor Michael Conlon
Professor Tahir Rizvi
Professor Tibor Pal
Dr. Agnes Sonnevend
Dr. Ahmed Al Qahtani
Dr. Ahmed Deemas al Suwaidi
Dr. Engela Adriana Prinsloo
Dr. Eyad Elkord
Dr. Farah Mustafa
Dr. Gulfaraz Khan
Dr. Maria Cabezudo
Dr. Maryam Al-Shamsi
Dr. Mohammed Al Houqani
Dr. Suhail A Al-Salam
Dr. Suleiman Al Hammadi



Left: seminar of Dr Carattoli
Right: seminar of Prof Professor Kate Rittenhouse-Olson



27th February 2013 **“A Novel Natural Adjuvant for Cancer Therapy”** by **Professor al-Ramadi** from CMHS, UAEU

Department of Biochemistry
Professor Michael Conlon
Dr. Maria Cabezudo
Dr. Farah Mustafa

10th April, 2013 **“Bird Flu H7N9, April 2013, Shanghai: Is This Virus The Next Deadly Pandemic Influenza Virus?”** by **Professor Norbert Nowotny** Professor in Virology, College of Medicine & Health Science, Sultan Qaboos University, Muscat, Sultanate of Oman

Department of Anatomy
Professor Eric Mensah-Brown

11th December, 2013 **“Monoclonal antibody and vaccines directed to a carbohydrate antigen for breast cancer therapy”** by **Professor Kate Rittenhouse-Olson**, Director of Biotechnology Program, Department of Biotechnical and Clinical Laboratory Sciences, State University of New York at Buffalo, USA

Department of Pathology
Dr. Suhail A Al-Salam

All the above events were well attended not only by the faculty members, but also by postdoctoral trainees, graduate students, undergraduate medical students and research assistants.

Department of Pediatrics
Dr. Suleiman Al Hammadi
Dr. Ahmed Deemas al Suwaidi

Original publications by IIRPG members:

Detailed list of publications of each IIRPG member can be found under their respective CMHS departments (refer to departmental reports as below):

Department of Microbiology and Immunology

Professor Basel al-Ramadi
Professor Tahir Rizvi
Professor Tibor Pal
Dr. Agnes Sonnevend
Dr. Ahmed Al Qahtani
Dr. Eyad Elkord
Dr. Gulfaraz Khan
Dr. Maryam Al-Shamsi

Neuroscience Research Group

Neuroscience Research Priority Group for 2013

The UAE University Neuroscience Group was officially formed in 2006 by a Decree from the Vice Chancellor of the UAE University. The group consists of basic scientists and clinicians with a common interest in the nervous system. The primary goal of the group is to strengthen collaborative research ties between its members and promote neuroscience research in the UAE and the region. The group develop educational programs at the UAE University that lead to higher degrees in Neuroscience, organize seminars, congresses and workshops, participate in scientific activities of other groups in the field of neuroscience. Moreover, the group develops educational programs, provides professional development activities, information and educational resources for neuroscientists at all stages of their careers in the UAE and the Region.

Major Achievements for 2013

In the year 2012 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 CMHS & UAE University Research Grants.

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

International Research Collaboration

The College of Medicine and Health Sciences - United Arab Emirates signed MoU with the Faculty of Medicine, Lund University Sweden to promote their cooperation in academic education and research in the field of Neurosciences. The cooperation also includes:

- Exchange of graduate and postgraduate students
- Joint teaching activities
- Joint supervision of PhD students

Group Leader

Professor Omar El-Agnaf
(Biochemistry Department)

Core Members

Prof. Milos Ljubisavljevic
(Physiology Department)

Dr. Murat Oz
(Pharmacology Department)

Dr. Ossama Osman
(Psychiatry Department)

Members:

Prof. Abdu Adem

Dr. Safa Shehab

Dr. Eric Mensah-Brown

Prof. Wim Lammers

Prof. Ernest Adeghate

Dr. Fadwa El-Mughairibi

Dr. Fatima Aljasmi

Dr. Maria Cabezudo

Prof. Basel Al Ramadi

Dr. Gururaj Aithala

Dr. Taha Amir

Dr. Sami Abdel-Kawi

Prof. Lihadh Al-Gazali

Prof. Mohamed Fahim

Prof. Mohamed Yousif Hasan Baniyas

Dr. Sehamuddin Galadari

Dr. Chris Howarth

Dr. Salim Bastaki

Dr. Juman Kubba

Dr. Amr A. Amin

Dr. Ahmed Al Marzouqi

Dr. Klaus van Gorkom

Dr. Hamdy Moselhy

Dr. Amin Bahi

Prof. Johann Braun

Dr. Leena Amiri

Dr. Kanita Dervic

Prof. Sehamdduin Galadari

Prof. John Conlon

Dr. Bassam Ali

Dr. Suhail Al Salam

Dr. Amr Nour Eldin Abdel Aty

Dr. Bassem Shaban Sadek

Dr. Md Emdadul Haque

Dr Fakhreya Yousuf Hussain Mohammad

Dr Mahmoud Abdel-Fattah Awara

- Joint research activities
- Visits by, and exchange of, scholars, teachers and other staff.

Scientific Collaboration

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

UAE:

Al Ain Hospital, Al Ain
 Central Veterinary Research Laboratory, Dubai
 Centre for Arab Genomic Study
 College of Science, UAEU
 Hamdan Award for Medical Sciences
 Tawam Hospital, Al Ain
 Zayed University, Dubai

Abroad:

Lund University Medical School, Sweden
 Boston College, MA, USA
 Bogomeletz Institute, Ukraine
 Conway Institute, Dublin, Ireland
 Columbia University, NY, USA
 Chapman University, USA
 Chinese University of Hong Kong, China
 Center of Molecular Neurobiology, University of Hamburg, Germany
 Harvard Medical School, USA
 Imperial College, London
 Institut Pasteur de Lille, Cedex, France
 Institutes for Medical Research and Neurology, Belgrade, Yugoslavia
 Iowa Medical School, USA
 James Cook University, Queensland, Australia
 Janssen Research Foundation, Belgium
 Lancaster University, UK
 Kyoto Prefectural University of Medicine, Kyoto, Japan
 Laboratory of Neurogenetics, National Institute on Aging, Maryland, USA
 Mayo Clinic, Florida, USA
 Manchester University, UK
 McMaster University, Canada
 National Institute of Health, USA
 Royal Free & University College London Medical School, UK
 SGHMS, University of London, UK
 Sultan Qaboos University, Muscat, Oman
 The Karolinska Institute, Sweden

The Queen's University of Belfast, UK
 University of Manchester, UK
 University of Aarhus, Denmark
 Universita La Sapienza, Rome
 University of Aalborg, Denmark
 University of Amsterdam, Netherlands
 University of Bonn, Germany
 University of California and San Diego, USA
 University of Gevle, Sweden
 University of Glasgow
 University of Groningen, Netherlands
 University of Turin, Italy
 University of Xi'an, China
 Utrecht Medical Centre, Netherlands

Summary of Grants & Publications 2013 (refer to departmental reports as below):

Shehab S (Anatomy).
 Adeghate E (Anatomy).
 Mensah-Brown E (Anatomy).
 Conlon JM (Biochemistry).
 El-Agnaf O (Biochemistry).
 Galadari S (Biochemistry).
 Haque E (Biochemistry).
 Al-Gazali L (Paediatrics).
 Adem A (Pharmacology).
 Hasan MY (Pharmacology).
 Bastaki S (Pharmacology).
 Attoub S (Pharmacology).
 Murat Oz (Pharmacology).
 Sadek B (Pharmacology).
 Mohammad F (Pharmacology).
 Fahim M (Physiology).
 Lammers W (Physiology).
 Ljubisavljevic M (Physiology).
 Osman O (Psychiatry).
 Moselhy H (Psychiatry).
 Awara M (Psychiatry).
 Abdel Aty A (Psychiatry).
 Gorkom van K (Radiology).

Trauma Research Group

Summary

During 2013 the Trauma Group has made major contributions in trauma education and research both nationally and internationally. The ATLS has actively continued. The members of the Trauma Group published 14 papers related to trauma in international refereed journals, and presented 33 abstracts at national and international meetings. Professor Abu-Zidan was a Director of the Organizing Committee of the 9th Middle East Trauma Conference, (October) Abu Dhabi, 2013 which has been highly successful. Two systematic reviews on ATLS and FAST training have been published in highly prestigious journals.

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 2012 included:

A) Road Traffic Collision Registry:

The data of this project is still generating useful information on road traffic collisions. The detailed information on more than 1000 patients involved in road traffic collisions was useful to develop a new model for detecting injury severity. A full time Senior Research Fellow, Dr Hani Eid continued analysis of the data from this registry considering different aspects of trauma epidemiology and management. This has increased the research activity of the Trauma Group.

B) Participation in trauma training courses

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

1) ATLS Provider and Instructor Courses: It was deemed essential to train UAE doctors using ATLS principles to improve the management of trauma patients. More than 2000 doctors have taken the Provider Course to date countrywide in UAE. We have been encouraged by the increasing support and popularity of ATLS in the UAE and the region. A greater awareness of the value of ATLS for enhancement of the early management of severe trauma is more evident in our setting.

Core Members:

*Faculty of Medicine
and Health Sciences*

Asst Prof Ali Jawas

Professor Fikri Abu-Zidan

Professor Frank Branicki

Professor Elsadig Kazzam

Assoc Prof Fawaz Torab

Assoc Prof Fayez Hammad

Assoc Prof Michael Grivna

Asst Prof Sami Shaban

Asst Prof Mohd Al Houqani

Dr Mohamed Sadig

Mr Abdulla Jamal

Al Rahba Hospital, Abu Dhabi

Dr Masoud Bashir

Dr Ashraf Hefny

Tawam Hospital

Dr Abdel Norueldin

Dr Masoud ur Rahman

Al Ain Hospital

Dr Mohammad Kamal Idris

Emirates International Hospital

Dr Yousef El Ashaal

Sharjah Kuwait Hospital

Dr Hani Eid

2) Point-of-Care Ultrasound training. We have noticed increasing support and popularity for "Point-of-Care" Ultrasound in clinical practice in our setting. The demand from participants, local and overseas, is increasing. Professor Abu-Zidan runs regular clinical point-of-care ultrasound rounds on acutely admitted patients to teach surgeons, residents and medical students. This will assure transfer of knowledge learned to the application stage. The Rapid Ultrasound in Shocked patients (RUSH) protocol has been introduced in clinical practice and at international meetings Professor Abu-Zidan has been promoting the use of this protocol.

C) Publications and Abstracts

In 2013, the group has published 14 papers related to trauma in international refereed journals. Both quality and quantity of research has improved. Dr Mohamed AlShafi under the supervision of Professor Abu-Zidan has published two systematic reviews in World Journal of Surgery on ATLS and FAST training. These papers needed 18 months of full time post to be finished.

The group has presented 33 abstracts and oral presentations at national and international meetings in 2013. Details of these publications and presentations are also to be found in the relevant Departmental Reports (Department of Surgery, and Department of Community Medicine).

D) International recognition

1. Professor Fikri Abu-Zidan won the Distinction Research Award of the Emirate of Abu Dhabi (2012) which was announced February 2013.

2. Professor Abu-Zidan was invited to Kuala Lumpur, Malaysia May 2013, to participate as

a main speaker in the 3rd International Clinical Conference on Emergency Medicine and to be a judge and instructor in the Mass Incident Response Exercise (MIREX) Course (Fig1).

3. Professor Abu-Zidan was a Director of the Organizing Committee of the 9th Middle East Trauma Conference, October, Abu Dhabi UAE, 2013.

Media Reports on Trauma Group activities

The Trauma Group research activities have attracted Media attention in 2013 covering the topic of interpersonal violence and winning the HAAD distinction Award.:

1. Ola Salem. The National Victims of violence need counseling.

<http://www.thenational.ae/news/uae-news/victims-of-violence-need-counselling>

2. Samihah Zaman, Gulf news. February 26, 2013. Abu Dhabi Medical Distinction Awards presented <http://gulfnews.com/news/gulf/uae/health/abu-dhabi-medical-distinction-awards-presented-1.1151166>

3. UAEU Professor Wins Medical Research Distinction Award http://www.uaeu.ac.ae/about/news/2013/03/medical_research/

4. Emirates News Agency. February 25, 2013 Hazza honours winners of Abu Dhabi Medical Distinction Award. http://www.wam.ae/servlet/Satellite?c=WamLocEnews&cid=1290003380040&pagename=WAM/WAM_E_Layout&parent=Collection&parentid=1135099399983

Professor Abu-Zidan observing and judging the MIREX Course, KL, Malaysia May 2013.



Fig: Professor Fikri Abu-Zidan won the Distinction Research Award of the Emirate of Abu Dhabi (2012) which was announced February 2013

Medical Student Research

Medical Student Research

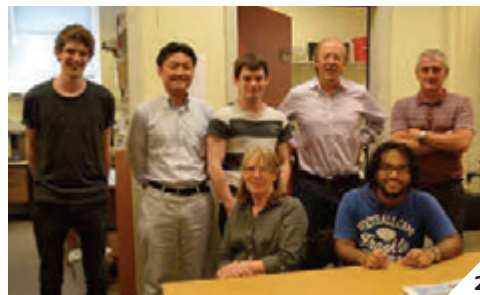
We believe that research is becoming an increasingly important part of career development for medical students. The College of Medicine & Health Sciences (CMHS) provides a wide variety of opportunities for students to participate in research. Early in the curriculum students are told about the research interests of faculty and the special interest research groups. Planning and design of research projects, research ethics, research project funding and biostatistics are also introduced.

Opportunities for extracurricular research include laboratory attachments, summer research projects and the UK Research Scholarship program and the Dr Ali Mosawi Scholarship. Students are encouraged to join research laboratories and to shadow research activities. It is hoped that some of these attachments will lead to presentations at scientific conferences and publications in peer reviewed journals. The summer holidays are a good time for student research and around 40 students were involved in research activities during the summer of 2013. 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 CMHS laboratories and visit UK laboratories to learn new techniques and generally develop their research interests. During the summer of 2013 four students visited UK – Ashwaq Bin Amro (4th year student) visited the laboratory of Professor Saadeh Suleiman, Bristol Heart Institute, University of Bristol; Abdullah Al Baloushi (3rd year student) visited the laboratory of Professor Andrew Todd, University of Glasgow and Amal Jaroor (1st year) and Noura Al Dosari (1st year) visited the laboratory of Professor Jai Singh, University of Central Lancashire.

The Dr Ali Mosawi Scholarship program provides opportunities for undergraduate and post-graduate students to visit UK Research Laboratories and Health Organizations. Khawla Salem a PhD Student visited the laboratory of Professor Mark Boyett, University of Manchester, to learn the technique of sinoatrial node cell isolation. The 9th International Scientific Conference for Medical Students in the GCC Countries will be held in the UAE in December 2014.



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Fig 1: Students receiving certificates

Fig 2: Abdulla Al Baloushi at the University of Glasgow

Fig 3: Amal Jaroor at Chorley Hospital, Lancashire

Fig 4: Ashwaq Bin Amro in a laboratory at the Bristol Heart Institute, University of Bristol

Fig 5: Abdulla Al Baloushi in a laboratory at the University of Glasgow

Impact Factor

Impact Factor

Journal Factor	Impact	Journal Factor	Impact
Nature	38.597	Curr Alzheimer Res	3.676
Nature	38.597	Chem Res Toxicol	3.667
Neuron	15.766	Cancer Immunol Immuno	3.637
Hepatology	12.003	Am J Physiol Heart Circ	3.629
Am J Hum Genet	11.202	J Neurol	3.578
Part Fibre Toxicol	9.178	Vaccine	3.492
Neuropsychopharmacol	8.678	Drug Des Devel Ther	3.486
Cancer Res	8.650	J Appl Physiol	3.484
Rev Med Virol	7.615	Int J Nanomed	3.463
J Neurosci	6.098	Cell Physiol Biochem	3.415
Neurobiol Dis	5.624	Virology	3.367
Int J Cardiol	5.509	Clin Nutr	3.298
J Antimicrob Chemother	5.338	Stress	3.252
Modern Pathol	5.253	Am J Neuroradiol	3.167
Arch Toxicol	5.215	Nutr Metab (Lond)	3.156
Hum Mutat	5.213	Birth Defects Res A Clin Mol Teratol	3.146
RNA	5.088	Toxicol Lett	3.145
Clin Exp Allergy	4.789	Clin Neurophysiol	3.144
Int J Med Microbiol	4.537	Biochemie	3.142
BMC Genomics	4.397	Reprod Toxicol	3.141
J Lipid Res	4.386	Neuroscience	3.122
Eur J Hum Genet	4.319	Clin Dev Immunol	3.064
Orphanet J Rare Dis	4.315	Int J Geriatr Psychi	2.977
J Neurotraum	4.295	Toxicon	2.924
J Alzheimers Dis	4.174	Comp Biochem Physi D	2.875
Curr Med Chem	4.070	Mini Rev Med Chem	2.865
J Inherit Metab DisR	4.070	Histopathology	2.857
Psychopharmacol (Berl)	4.061	Pharmacol Biochem Behav	2.848
Toxicology	4.017	Exp Physiol	2.790
Immunol Cell Biol	3.925	Toxicol In Vitro	2.650
Amino Acids	3.914	Exp Toxicol Pathol	2.622
Epilepsia	3.909	Sex Transm Infect	2.611
J Pharmacol Exp Ther	3.891	J Appl Toxicol	2.597
Biochimica Biophysica Acta	3.848	Eur J Pharmacol	2.592
Clin Immunol	3.771	Peptides	2.522
Eur J Neurosci	3.753	Euro J Radiol	2.512
PLoS One	3.730	Mol Biol Rep	2.506

Journal Factor	Impact	Journal Factor	Impact
Chem Biol Drug Desi	2.469	Z Gastroenterol	1.408
J Chem Ecol	2.462	Hematology	1.393
Molecules	2.428	Clin Neuroradiol	1.379
Biochem Bioph Res Co	2.406	Toxicol Mech Methods	1.367
Microb Drug Resist	2.364	Med Intensiva	1.323
Bioorg Med Chem Lett	2.338	Asian Pac J Cancer Prev	1.271
Mol Cell Biochem	2.329	Behav Neurol	1.247
Am J Med Genet A	2.304	Indian J Exp Biol	1.195
J Med Microbiol	2.297	Eur Rev Med Pharm Sci	1.093
Int J Clin Exp Patho	2.242	World J Pediatr	1.084
World J Surg	2.228	Asia Pac J Pub Health	1.057
Exp Brain Res	2.221	Asia Pac J Clin Nutr	1.055
Gene	2.196	Med Hypotheses	1.054
J Pharmacol Tox Meth	2.150	Arh Hig Rada Toksiko	1.048
Med Oncol	2.147	Traffic Inj Prev	1.042
Nutr Res	2.142	Med Prin Pract	0.963
BMC Gastroenterol	2.110	Eur J Drug Metab Pha	0.944
Viol J	2.092	World J Emerg Surg	0.918
BMC Pub Health	2.076	J Cardiothorac Surg	0.900
Nutrients	2.072	Hemoglobin	0.894
Global Health Action	2.062	Int J Inj Contr Saf Promot	0.786
Regul Peptides	2.056	Acta Chromatogr	0.644
Fund Clin Pharmacol	1.988	J Obstet Gynaecol	0.546
BMC Pediatri	1.982	Asian J Surg	0.543
Acid Anal Prev	1.964	Afr Health Sci	0.500
Ann Anat	1.960	Int J Psych Clin Pract	0.448
BMC Vet Res	1.861	Vojnosanit Pregl	0.210
Int J Gynaecol Obstet	1.836	Accid Anal Prev	-
Burns	1.799	Acta Med Indonesia	-
BMC Med Ethics	1.705	Addictive Disorders and Their Treatment J	-
Angiology	1.647	Asian J Psych	-
BMJ Open	1.583	Biol Open	-
Crisis	1.570	Biomed Res Int	-
Toxicol Ind Health	1.555	BMC Pharmacol Toxicol	-
Physiol Res	1.531	BMC Res notes	-
BMC Cardiovasc Disor	1.457	Case Reports Nephrol Urol	-
Paed Neurol	1.416		

Journal Factor	Impact	Journal Factor	Impact
Clin Mol Teratol	-	Prim Care Companion CNS Disord	-
Comp Clin Pathol	-	Saudi J Kidney Dis Transpl	-
Euro J Sports Med	-	South East Asia J Public Health	-
Evid Based Med	-	Springer Series in Translational Stroke Res	-
Expert Rev Dermatol	-	Sultan Qaboos Univ Med J	-
Hamdan Med J	-	WHO publications	-
Int J Behav Healthcare Res	-	World Hosp Health Serv	-
Int J Biochem Mol Biol	-		
Int J Clin Exp Med	-		
Int J Dream Res	-		
Int J Health Care Quality Assu	-		
Int J Prev Treat Subst Use Disorders ISRN	-		
ISRN Hematol	-		
J Acquir Immune Defic Syndr	-		
J Clin Endocrinol Metab	-		
J Clin Exp Med	-		
J Emerg Trauma Shock	-		
J Environ Immunol Toxicol	-		
J Health Care Finance	-		
J Inflamm Res	-		
J Med Sci	-		
J Med Toxicol	-		
J Mol Signal	-		
J Pediatr Biochem	-		
J Pediatr Infect Dis	-		
J Perinat Neonat Med	-		
Matern Child Health J	-		
Med Sci Educ	-		
Middle East Afri Health Sci	-		
Mol Syndromol	-		
Navigation signage design for global health	-		
Oman Med J	-		
Paediatr Int Child H	-		
Patholog Res Int	-		

مقدمة المحرر

هذا هو التقرير السنوي الثالث والعشرين عن نشر البحوث وملاحح بحوث كلية الطب والعلوم الصحية بجامعة الإمارات العربية المتحدة. و يعتبر هذا العدد بمثابة جزء من سلسلة متواصلة من التقارير البحثية السنوية التي يعود تاريخها منذ أول تقرير لنا سنة 1991.

و كما جرت العادة في كل عام فقد حاولنا تطوير والحفاظ على جودة هذا المجلد وواصلنا إدراج ملاحح عن الأقسام والتقارير الواردة من مجموعات الأولوية البحثية، بما في ذلك تقرير عن البحث العلمي لطلبة الطب. في نهاية هذا المجلد أرفقنا قائمة تضم المجلات التي قمنا بنشرها عام 2013 وعوامل تأثيرها.

حافظنا في هذا المجلد على التصميم الذي قمنا باستخدامه على مدى السنوات السبع الماضية، حيث قامت السيدة إيفانا من قسم الإعلام المرئي بعمل تصميم جديد للمجلد وحظي على الموافقة العامة، وفي هذا الإصدار اتبعت السيدة إيفانا هذا التصميم الذي ينص على أسلوب موحد والتناسق في استخدام العناصر البصرية، حيث يتميز هذا التصميم الجديد بسهولة تحديد الفصول والأقسام وفئات النص.

يسرني أن اتوجه بالشكر والثناء لفريق الإنتاج، السيدة إيفانا مصممة الجرافيك التي بذلت مجهودا في تصميم المجلد، والسيد راجا جوبالان والسيدة أدريانا على جهودهم في مرحلة تحرير المساهمات الأولية للإدارات والتواصل مع جميع الأعضاء، بالإضافة الى السيد اشوك لمساهمته بتوفير الصور الفوتوغرافية، والآنسة العنود للمشاركة والقيام بدور الترجمة.

جزيل الشكرالى جميع المساهمين في هذا الإصدار

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مقدمة مساعد العميد لشؤون البحث العلمي و الدراسات العليا

خلال السنوات الماضية لم نحافظ فقط في كلية الطب والعلوم الصحية على نهجنا بل قمنا بتقديم إسهامات بحثية ذات مستوى عال من خلال المنشورات البحثية والمساهمات الدولية والوطنية في اللقاءات العلمية والأنشطة الأكاديمية. حيث ساعدت الإسهامات البحثية لكلية الطب في تبوأ جامعة الإمارات مكانة رائدة في مجال البحوث الطبية الحيوية على مستوى دولة الإمارات والمنطقة.

بالرغم من الأجواء التنافسية العالية لجذب الأموال اللازمة للبحوث، نحن فخورون بأعضاء هيئة التدريس الذين حافظوا على بيئة تقدمية وتعاونية مع المحافظة أيضا على الإنتاجية ذات مستوى عالمي، ولا يزال مكتب البحوث والدراسات العليا المواصلة في تعزيز هذه البيئة العلمية عن طريق تخصيص الموارد بصورة حكيمة ورعاية قوة جديدة وتوفير البنية التحتية والموارد اللازمة من خلال الحصول على أحدث المعدات والتقنيات بالإضافة الى تسيير ذخائر الكلية للاستهلاك العام. في السنوات الأخيرة قمنا أيضا بتطوير وصيانة مرافق البحوث المركزية مثل وحدة التصوير والأبحاث التحليلية ومرفق الخلية الجزئية الحيوية بالإضافة إلى مربى لحيوانات التجارب الصغيرة.

من الضروري أن نعبر عن امتناننا للإسهامات والدعم المتواصل من قبل موظفي جامعة الإمارات العربية المتحدة والذين يسعون إلى جعل جامعة الإمارات العربية المتحدة مؤسسة للأبحاث المكثفة من أجل تنفيذ رؤية معالي الشيخ نهيان مبارك آل نهيان الرئيس الأعلى للجامعة.

المنشورات البحثية لكلية الطب والعلوم الصحية تسلط الضوء على الأبحاث العلمية واتساعها وبالتالي تعزز السمعة البحثية للكلية ولجامعة الإمارات العربية المتحدة بشكل خاص والأمة بشكل عام.

يسرني أن أعتنم هذه الفرصة لأشكر جميع المساهمين في هذا المجلد والأسهامات البحثية بكلية الطب والعلوم الصحية و على وجه الخصوص الدكتور ويم لامرز على جهوده خلال السنوات الماضية في هذا المشروع، والدكتور كينيث بانجال على المواصلة في الدور الذي يقوم به.

الدكتورة/ مريم الشامسي
مساعد العميد للبحوث والدراسات العليا

كلمة العميد

يسعدني أن أقدم التقرير السنوي لملامح بحوث وإسهامات كلية الطب والعلوم الصحية التي قام بها الباحثين عام 2013. وهو بمثابة التزامنا لتوثيق الأنشطة البحثية والمخرجات سنويا. يتوفر هذا التقرير على شكل نسخ ورقية بالإضافة إلى نسخ إلكترونية في موقع جامعة الإمارات العربية المتحدة.

قامت كلية الطب والعلوم الصحية بالعديد من الجهود لإستقطاب تمويل البحوث وبدأ المشاريع البحثية بالتعاون مع شركاء محليين ودوليين متخصصين في العلوم الأساسية والسريرية و البحوث المجتمعية.

وباعتبار كلية الطب والعلوم الصحية إحدى التسع كليات في جامعة الإمارات فهي تسهم في حوالي ثلث إجمالي النتائج البحثية للجامعة. قامت كلية الطب والعلوم الصحية بتعزيز القدرات البحثية عن طريق الإسهام في تطوير مرافق المختبرات وتوسيع برامج الدراسات العليا ودعم الموظفين والطلبة لعرض أعمالهم البحثية في اللقاءات والمؤتمرات الدولية.

خصصت جامعة الإمارات العربية المتحدة في كلية الطب والعلوم الصحية باعتبارها إحدى الكليات الرائدة مركزا لأبحاث الصحة العالمية وهو مركز زايد بن سلطان للعلوم الصحية برئاسة الدكتورة فاطمة المسكري.

أود أن اهنئ موظفي الدعم الأكاديمي على جهودهم وانجازاتهم في إنتاج البحوث الطبية. نجحت كلية الطب والعلوم الصحية في استقطاب المنح المقدمة من جهات متنوعة مثل مؤسسة تيري فوكس وجائزة حمدان و مؤسسة البحوث الوطنية. إن الهدف الرئيسي للجهود البحثية هو الفهم الجيد للمرض وتطوير كيفية التعامل مع المشاكل الصحية المتعلقة بمجتمع دولة الإمارات العربية المتحدة.

يسرني أن أعبّر عن شكري الخاص إلى المحرر الأستاذ الدكتور ويم لامرزم على تفانيه والعمل الجاد في تحرير التقرير السنوي لملامح بحوث وإسهامات كلية الطب والعلوم الصحية منذ بدايته عام 1991، كما أشكر فريق الإنتاج والمجتمع الأكاديمي على تقديم سجل حافل من الجهود البحثية. وتطلع إلى مواصلة نجاح أبحاثنا في كلية الطب والعلوم الصحية

الأستاذ الدكتور / تار شينج أو
القائم بأعمال عميد كلية الطب والعلوم الصحية

المحتويات

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التصوير:
السيد أشوك براساد
الترجمة:
الآنسة العنود الجابري

الصور المدرجة بالداخل من قبل الباحثين



المنشورات السنوية لمكتب العميد المشارك
لشؤون البحث العلمي و الدراسات العليا

طبع بواسطة وحدة المطبوعات
جامعة الامارات العربية المتحدة

2013

المنشورات العلمية و الاهتمامات البحثية

مكتب مساعد العميد لشؤون البحث العلمي
و الدراسات العليا

