THE 2012 HOBART SYMPOSIUM

Update on the Origins and Management of Disease

THIS EVENT HAS ONLY BEEN POSSIBLE WITH THE VERY GENEROUS SPONSORSHIPS FROM

SPEAKER PROFILES

Pratibha V. Nerurkar, Ph.D.

Associate Professor
Laboratory of Metabolic Disorders and Alternative Medicine
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I am currently an Associate Professor at College of Tropical Agriculture and Human Resources at University of Hawaii. I completed my BSc. MSc and Ph.D. in Mumbai (Biochemistry -all throughout) and received post-doctoral fellowship at NIH/NCI in the field of transplacental carcinogenesis. Since 2002, I have been at CTAHR. I teach undergraduate biochemistry and graduate biochemistry (signal transduction and gene regulation) and have my own research program "metabolic disorders and alternative medicine" with specific focus on diabetes and obesity. I also serve as the academic editor for PLoS ONE.

I will present:

a) basic science data on the effect of bitter melon on ER signaling to alleviate diabetes and insulin resistance using mice model
b) pilot project clinical data on effects of bitter melon on safety, body anthropometric and lipids in healthy obese subjects.

Professor Rafat Siddiqui

Director, Cellular Biochemistry Laboratory
Methodist Research Institute/Indiana University School of Medicine

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I am currently investigating synergistic effects of biomolecules for a NIH funded study. I am also involved in contract research with Baxter Healthcare to develop intravenous lipid emulsions, and with Abbott-Nutrition to screen and isolate natural compounds for stimulating muscle protein synthesis. I am a grant reviewer of Susan G Komen Breast Cancer Foundation-Indiana affiliate and Indiana University Basic Science Research Committee. I am a member of International Society for the Study of Fatty acids and Lipids (ISSFAL) and American Society of biochemistry and Molecular Biology (ASBMB). I serve as an editor for American Journal of Biochemistry and Molecular Biology, International Journal of Cancer Research, International Journal of Biological Chemistry.

I will be presenting the synergistic effects of two dietary components: docosahexaenoic acid (DHA), an omega-3 fatty acid present in cold-water fish; and curcumin (CCM), an herbal nutrient present in turmeric. A whole genome microarray approach was used to investigate changes in gene expression for the synergistic effects of CCM+DHA in SK-BR-3 cells lines. DHA+CCM triggered transcript-level responses, in disease-relevant functional categories, that were largely non-overlapping with changes caused by DHA or CCM individually. Genes involved in cell cycle arrest, apoptosis, inhibition of metastasis, and cell adhesion were up-regulated, whereas genes involved in cancer development and progression, metastasis, and cell cycle progression were down-regulated. The synergistic effect of DHA and CCM in the SK-BR-3 cell line suggests that the specific breast cancer phenotype is an important factor for predicting efficacy. We further extended these studies in a DMBA-induced breast cancer model and also demonstrated synergistic effects of DHA+CCM in an in vivo system.

Prof. Dmitri Sviridov

Head, Laboratory of Lipoproteins and Atherosclerosis,
Baker IDI Heart and Diabetes Institute.

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Dmitri's research in the Baker IDI Heart and Diabetes Institute is focused on molecular, cellular and clinical aspects of lipid and lipoprotein metabolism primarily in relation to atherosclerosis and cardiovascular disease. It involves studying all aspects of reverse cholesterol transport, intracellular cholesterol trafficking and structural, functional and clinical studies of high density lipoprotein.
In his presentation Dmitri will address the controversy around anti-atherogenic properties of High Density Lipoprotein (HDL, "good cholesterol"). HDL is the strongest negative predictor of cardiovascular disease, and yet attempts to use HDL for prevention or treatment of atherosclerosis were so far unsuccessful. In his talk Dmitri will present his studies and discuss findings of others in an attempt to analyze the reasons why.

Professor Peter Rathgen

Vice-Chancellor, University of Tasmania
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Professor Peter Rathjen is the Vice-Chancellor and President of the University of Tasmania. Prior to taking up this position in early 2011, Professor Rathjen was Deputy Vice-Chancellor (Research) at the University of Melbourne, where he had also held the position of Dean of Science from 2006. Previous to this he was Executive Dean, Faculty of Sciences at the University of Adelaide.

Professor Rathjen has specialised in embryonic stem (ES) cell research. He established an internationally recognised research program into stem cell biology and stem cell therapies. He is a founding member of the Australian Research Council (ARC) Special Research Centre for the Molecular Genetics of Development, and the Australian Stem Cell Centre (ASCC).

Prof John Burgess

Director, Endocrinology Laboratory, Royal Hobart Hospital
and Associate Head, MBBS Years 1-3, University of Tasmania

John is a consultant endocrinologist at the Royal Hobart Hospital. After attaining Fellowship of the Royal Australasian College of Physicians, he completed an MD examining factors influencing clinical expression of tumours in Multiple Endocrine Neoplasia type 1, and subsequently a PhD investigating the epidemiology of papillary thyroid carcinoma and its relationship to iodine nutrition. John is currently Chairman of the Tasmanian Ministerial Thyroid Committee and is actively involved in research into iodine nutrition in the Tasmanian population.

In his presentation he will talk about the issues around the fact that the population of the south-eastern states of Australia live in a region of endemic iodine deficiency (ID). The risk of ID has been recognised and managed in the Tasmanian population for more than 50 years. This presentation will review the history and current status of iodine supplementation in Australia, with a particular focus on the implications for human health.

Mr Tony Van Galen

Senior Medical Scientist
Anatomical Pathology, Royal Hobart Hospital

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I am the medical scientist in charge of the routine histopathology laboratory. I have recently attained the fellowship of the Australian Institute of Medical Scientists. I am a casual teacher at Polytechnic teaching the Histological Tests module.

The diagnostic laboratory plays an integral part in the early detection, diagnosis, grading and staging of prostate cancer. My presentation will focus on the application of current laboratory practices that improve the accuracy, specificity and sensitivity of these diagnostic tests

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Dr Robin Harle

Dr Harle is a radiologist working at the Royal Hobart Hospital and for Radiology Tasmania. He has been a Radiologist for 8 years and in that time has been involved with teaching and the RANZCR. He is the Director of Radiology Training at the Royal Hobart Hospital and has an interest in body imaging. He will present a review of medical imaging techniques with an emphasis on newer applications of medical imaging in diagnosis and management.

Dr Raj Eri

Senior Lecturer, Group Leader, Mucosal Biology Lab
University of Tasmania

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My current interests include

- **Involved in research into pathogenesis of inflammatory bowel diseases and colorectal cancer- mainly biochemistry and immunology aspects**
- **Currently guiding 3 PhD students and 2 Hons students**
- **Convenor of Australia Society for Medical Research, Tasmania**

In my presentation I will

- **Define inflammatory bowel diseases**
- **Review of the mucosal immune system**
- **Latest advances in IBD research**

Dr Michelle Keske

Senior Research Fellow
Menzies Research Institute

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Michelle completed her Ph.D from the Department of Biochemistry at the University of Tasmania in 2000. She completed 5 years of postdoctoral training at the University of Virginia and the NIH in the USA. Following this she worked in Industry at Martek Bioscience Corporation, Maryland, USA as a Senior Clinical Scientist from 2005-2007. Dr Keske returned home to Tasmania to join the

Menzies Research Institute in late 2007 as a Quantum Leap Fellow working in the Diabetes Research Group.

Dr Dino Premilovac

University of Tasmania, Menzies Research Institute
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I finished my PhD in May 2012 at the Menzies Research Institute Tasmania in the Muscle Research Group. My thesis was entitled, *Microvascular Dysfunction and the Development of Insulin Resistance*. I am currently working as a junior research fellow in the same lab finishing off some work from my thesis for publication.

The presentation I will be giving is based on a chapter from my PhD thesis with some more recent data added. In this chapter I examined how increased salt intake affected whole body and muscle insulin sensitivity. More specifically, how increased salt intake induces microvascular insulin resistance within skeletal muscle vasculature and subsequently leads to the development of skeletal muscle insulin resistance *in vivo*.

Prof James Vickers

Head, School of Medicine
University of Tasmania

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I am currently the Head of the UTAS School of Medicine, Professor of Pathology and Co-Director of the Wicking Dementia Research and Education Centre. The Wicking Centre is involved in a spectrum of projects, from laboratory-based studies on dementing illnesses through to health services research related to care of dementia, and interventions studies on reducing risk of dementia. The Wicking Centre also has a substantial research program targeted at various levels of the health workforce.

I will be detailing the latest understanding on the neurobiological basis of the major cause of dementia, Alzheimer's disease. My presentation will report on what is known about the pathology of this condition as well as current uncertainties which are subject to international research. I will also cover what is known about risk factors for Alzheimer's disease, and areas of Wicking Centre research that relate to this.

Dr Milford McArthur

Staff Specialist Psychiatrist
Royal Hobart Hospital and Mental Health Services

Formerly Director Department of Psychological Medicine Royal Hobart Hospital, Currently a staff specialist psychiatrist at the RHH and working for Mental Health Services. Over the past 20 years Milford has been involved in the assessment and management of many patients who presented to the RHH either suicidal or following a suicide attempt and thus trying to minimise the risk to these patients.

Milford's talk is about suicide in Tasmania including an update on rates and methods, risk factors and attempts to predict and thus reduce the risk of suicide in our patients

Mr Michael Thompson
Medical student
University of Tasmania
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Michael is a final year medical student with a strong interest in medical research currently studying at the University of Tasmania. He has been supported by numerous scholarships and several grants to pursue his interest in research and maintain a track record of academic excellence. In 2010 Michael was awarded a Bachelor of Medical Science with First Class Honours for his work on the genetic regulation of potential drug targets for Alzheimer's' Disease. In addition to his completing his clinical years, Michael has worked as an Editor for the Australian Medical Student Journal from 2011-12 and will shortly take over as the next Editor in Chief of the journal.

Michael's presentation will discuss the role of the clinician-scientist in facilitating and instigating translational (bench-to-bedside) and bedside-to-bench research is well established. Participation in research is encouraged throughout medical school as a medium for increasing scientific literacy and the ability of medical graduates to practice, and contribute to, evidence based medicine. These time-honoured vocational paths endure on a background of tectonic shifts in the postgraduate landscape, with major alterations in the supply:demand ratio of junior medical doctors and changing expectations of employers and medical colleges. This presentation aims to provide a brief overview the covering the practical issues of how, why and when for research as a medical student. The role of the national medical student journal in encouraging scientific literacy among medical students will also be discussed.
