OUR MISSION IS TO BE THE LEADING ORGANIZATION IN THE FIELD OF CLINICAL CHEMISTRY AND LABORATORY MEDICINE WORLDWIDE

eNewsLetter

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EDITORIAL: A YEAR OF CHALLENGE AND OPPORTUNITY

Dr. Graham Beastall, President IFCC 2009

Happy New Year to everyone connected with IFCC. That wish is especially relevant for 2009 because the global 'credit crunch' promises to make it a challenging year in our professional and private lives. Like so many organizations IFCC is feeling the pressure as our investment income has vanished and it may take some time to recover. However, I write this on the day a new President is inaugurated in the USA and there is a feeling of optimism and hope across the world - let us hope that this translates into new opportunities at local national and international level.

The Executive Board for 2009-11

The IFCC Executive Board for the next three years has agreed its role:

President Graham Beastall Governance and external relationships

Vice President Chris Lam Awards

Past President Jocelyn Hicks Sponsorship opportunities, developing communities

Treasurer Ghassan Shannan Finance, Liaison to AFCB

Secretary Paivi Laitinen Operational matters, Liaison to EFCC
Member at Large Ulisses Tuma Liaison to COLABIOCLI
Member at Large Joseph Lopez Liaison to APFCB
Member at Large Bernard Gouget Special projects
Corporate Member Thomas Brinkmann Liaison with diagnostics industry

Planning the Next Three Years

The Executive Board next meets at the beginning of March 2009. A significant proportion of the meeting will be given over to strategic planning and definition of an action plan. The thoughts in my campaign manifesto will be central to this process but there is always the opportunity to include bright ideas from outside the Executive Board. I am happy to receive your suggestions atgbeastall@googlemail.com. Overall I am keen to agree an action plan that adopts "IFCC Looking Outwards" as its main aim.

Annual Report and Annual Accounts for 2008

Work has started on these documents that are a vital part of demonstrating good governance of IFCC. I hope that both these documents will be available in the Spring of 2009. The new version of the IFCC Handbook should also be available at the same time and this is an important resource for maintaining and improving communication within IFCC.

The IFCC Website

The new IFCC website went live early in January (www.ifcc.org). This represents a big improvement on the previous website. There is still quite a bit of tidying up to do but we have a more flexible and responsive system. This is critical for IFCC as our website is the most important means of communication for IFCC. We intend to appoint a new Publications/Distance Learning Co-ordinator who will help us to get the most out of our website. Thanks to Ellis Jacobs and his Division for bringing this to reality. The new EFCC website will adopt the same model and this should help to improve communications between IFCC and EFCC.

New Member of IFCC

I am delighted to report that The Sudanese Society of Clinical Biology has been elected as the 80th national member of IFCC. I am delighted to welcome another member from the African continent.

IFCC General Conference 2010

The IFCC General Conference for 2010 will be held in Corfu, Greece in the middle of April 2010. This conference is open to everyone working for IFCC, National Representatives and Corporate Representatives are invited. The General Conference is the best opportunity for IFCC to review its activity and to plan for the future in terms of meeting the needs of its members and the profession.

EuroMedLab Innsbruck: 7-11 June 2009

Despite the difficult financial climate EuroMedLab 2009 looks like being an outstanding success. Now is the time to register and to plan your travel. Go to www.innsbruck2009.orgfor details. On the afternoon of Sunday 7 June I will co-chair a meeting to share thinking on the IFCC programme and action plan for 2009-11 and to invite more ideas on the 'IFCC Looking Outwards' theme.

NEWS FROM NATIONAL ASSOCIATIONS AND FEDERATIONS

The APFCB's Laboratory Management Committee (C-LM), which is chaired by Dr Samuel Vasikaran of Australia, organised the following regional activities in 2008.

Variation of HbA1c Testing

Since 2005, the APFCB's Laboratory Management Committee has undertaken surveys to assess the variation of HbA1c testing among laboratories within the APFCB region. In 2008, the Committee of Proficiency Testing of the Taiwan Society of Laboratory Medicine (TSLM) conducted the fourth round of the HbA1c survey as before. The APFCB participation in these proficiency surveys has been sponsored as follows:

Year of survey	Sponsor
2005	Bio-Rad
2006	Dade-Behring
2007	Bio-Rad
2008	Bio-Rad

Method: Five fresh blood samples that were obtained from healthy and diabetic human subjects were sent to participants in the Asia-Pacific region, accompanied by an instruction kit and a questionnaire. The results submitted by the participants were evaluated against target values obtained by NGSP secondary laboratories. The acceptable limit was defined as peer group median +0.8% HbA1c, used by TSLM. In addition, a grading based on +7% of the NGSP target value, was also provided for educational purposes.

For the 2008 survey, 19 sets of survey samples were sent out. Of these, 5 labs (2 in India, 2 in Malaysia and 1 in Vietnam) failed to return their results. All surveys undertaken thus far have been completed and reported. The results are being written up for publication in a scientific journal.

Interpretative Comments Educational Program

This is an educational project on interpretative commenting of laboratory results. It requires very little cost, as it does not involve samples. The project was organised and coordinated by Dr Vasikaran, who, together with a group of senior chemical pathologists, commented on results. Besides Dr Vasikaran (Chair), the group comprised Dr Ken Sikaris (Australia), Dr Leslie Lai (Malaysia) and Dr Sunil Sethi (Singapore).

The invitation to laboratories to participate was issued in March 2008. There were about 31 registered participants, of whom about 27 were from the APFCB region and 4 were from Africa. A total of 5 case reports were sent out between May and October 2008. The cases, in chronological order, were on glucose metabolism, thyroid function, PSA, eGFR and plasma lipid levels. The response rate was initially about 60% but fell to below 50% at the last survey.

The C-LM is exepected to continue with this project in 2009. There is no charge for participation and laboratories from outside the region interested in participating in this programme should contact Dr Vasikaran (e-mail: Samuel.Vasikaran@health.wa.gov.au)

Educational Activites of the APFCB in 2008

The educational activites of the APFCB are organised by the Education Committee that is chaired by Mrs Endang Hoyaranda of Indonesia with Dr Sun Fei of Mainland China as its Secretary. These lectureships aim to bring current knowledge to clinical

biochemists in APFCB member countries. The APFCB organised 3 travelling lectureships within the region during the year.

APFCB Travelling Lectureship

The Travelling Lecturer for the period 2007-08 was Dr Leslie Lai of Malaysia, the sixth since the inception of the programme in 1999. The topic of Dr Lai's lectureship was Diabetes Mellitus and the Metabolic Syndrome. Abbott Diagnostics and Abbott Diabetes Care sponsored the lectureship and it had the following schedule:

Location	Date
Beijing, China	17th Oct 2007 at 11th APCCB
Taipei, Taiwan	11th Nov 2007
Hong Kong	7th March 2008
Kuala Lumpur, Malaysia	July 2008
Hanoi, Vietnam	16th Oct 2008

IFCC Visiting Lectureship

The IFCC Visiting Lectureship to the APFCB region is a collaborative activity among the IFCC, which provides the speaker, the APFCB's Education Committee, that organises the itinerary and the National Societies of the IFCC that play the host. The Visiting Lecturer to the region in 2008 was Professor Mauro Panteghini of Italy, Chair of the IFCC's Scientific Division, who toured the region from 30th August to

17th September. Professor Panteghini's itinerary took him to Japan Taiwan, Hong Kong, Malaysia, Indonesia and Australia. The topics of his lectures were: (1) The Basics of Cardiac Biomarker Interpretation, and (2) Traceability, reference systems and result comparability. Professor Panteghini is expected to visit China in 2009.

Professor Panteghini lecturing in Kuala Lumpur

APFCB-Beckman Coulter Education Symposium Lectures

Dr Sunil Sethi of Singapore was the speaker for APFCB-Beckman Coulter Education Symposium series of lectures on laboratory management in 2007-08. Dr Sethi presented the following lectures during this period:

i. The Application of Laboratory Processes in Enhancing Laboratory Deliverables in Kuala Lumpur on 11th August 2007, at the MACB Meeting.

ii. Making Automation, Informatics and Workflow Redesign Transform Patient Care, in Hong Kong on 2nd November 2007

iii. Process Improvements in the Clinical Laboratory Environment, in Hanoi on 17th October 2008.

Dr Sunil Sethi

APFCB-Sekisui Travelling Lectureship

Sekisui Chemical Co (previously called Daiichi Fine Chemicals) of Japan sponsored the APFCB-Sekisui lectureship. The lecturer was Associate Professor Shinji Kihara of Osaka University who spoke on adiponectins. This is an emerging diagnostic and possibly therapeutic protein. The lecture was delivered in Indonesia in 2007 and again in Singapore on 18th September 2008 where it was attended by more than 120 registrants. The 3rd lecture in this series was delivered in Kuala Lumpur, on 21st November.

Professor Shinji Kihara

APFCB Travelling Lecturer 2009-2010

The APFCB is pleased to announce the appointment of Dr Samuel Vasikaran, MB BS, MSc, MAACB, FRCPA, MD as its Travelling Lecturer for 2009-2010. The topics offered for Dr Vasikaran's lectureship are

(i) bone markers and osteoporosis,

(ii) eGFR and markers of renal disease, and,

(iii) interpretative commentary of laboratory results.

Dr Vasikaran is Chemical Pathologist at the PathWest-Royal Perth Hospital and a Visiting Consultant at the Osteoporosis Clinic of the same hospital. Prior to this, he was the Head of Core Clinical Pathology & Biochemistry at the Royal Perth Hospital. He is concomitantly Clinical Associate Professor School of Pathology & Laboratory Medicine at the Faculty of Medicine, Dentistry & Health Sciences, University of Western Australia.

Dr Vasikaran obtained his MB BS degree from the University of Colombo, Sri Lanka, in 1982. He completed his MSc in Clinical Biochemistry from the University of Surrey, UK, in 1989. In 1992, he was awarded the Membership of the Australasian Association of Clinical Biochemists and the Fellowship of the Royal College of

Pathologists of Australasia the following year. Dr Vasikaran received the Doctorate of Medicine post-graduate degree from the University of Sheffield, UK, in 1999.

Dr Vasikaran is an active researcher, having published widely in international journals, notably on bone metabolism and more recently on interpretative commentary of laboratory results. He has been involved in professional activities both internationally and within Australia. Dr Vasikaran is the Chairman of the APFCB's Laboratory Management Committee and the organiser of its Interpretative Comments Educational Programme. He is also a member of the IFCC Committee on Clinical Laboratory Management and Chair of the bone marker working group. Within Australia, Dr Vasikaran has served in both the AACB and the Royal College of Pathologists of Australasia: among the positions he holds are Editor of the AACB's journal, The Clinical Biochemist Reviews and Examiner, RCPA (Chemical Pathology).

THE IFCC PROFESSIONAL SCIENTIFIC EXCHANGE PROGRAMME (PSEP)

Contributed by Dr. Burak Bahar, Gazi University, Ankara, Turkey

I am currently working as a senior resident at Gazi University, Department of Biochemistry, Ankara, Turkey. I was honored to be awarded the International Federation of Clinical Chemistry and Laboratory Medicine (IFCC) PSEP Scholarship.

During my 2-month stay in South Africa, working at Cape Town's world famous Red Cross War Memorial Children's Hospital, I had the opportunity to learn how to use the GC/MS and to perform a research project using this system. I, together with Drs George Van Der Watt and Fierdoz Omar, developed a new method for the rapid and sensitive quantitative analysis of leukocyte cystine using isotope dilution mass spectrometry. This method was then used to establish reference intervals for leucocyte cystine concentrations in healthy South Africans.

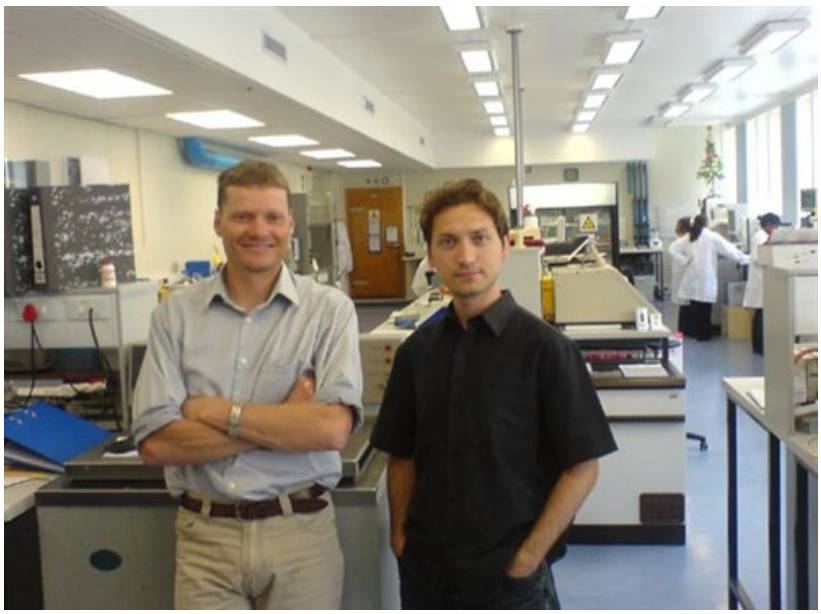
Having worked at the South Africa's leading centre for postgraduate specialist paediatric medical and surgical training, I have also improved my knowledge in paediatric chemical pathology, particularly in inborn metabolic diseases, infections such as acquired immunodeficiency, tuberculosis and nutritional problems. By joining lectures and journal clubs at University of Cape Town, I had also the opportunity to interact with my colleagues and experts at different fields of Chemical Pathology.

t was an exciting experience for me to spend my leisure time at the beautiful City of Cape Town that has numerous interesting sites to visit like Table Mountain and Cape Point, and famous beaches like Muizenberg or attractions such as hiking and surfing.

I would like to express my gratitude to Professor Tahir S. Pillay, head of department, and Dr George Van Der Watt, his co-worker and consultant pathologist. Without them my experience would not have been the same.

I would also like to thank Dr Peter Berman for accepting me at his tutorials, Dr Tricia Owen and Ms Surita Meldau for teaching me how to perform PCR, and the registrar team Drs Fierdoz Omar, David Haarburger, John Stanfliet and Ryan Benjamin, who were very kind, generous and hospitable. I acknowledge the support of the entire staff of the Chemical Pathology laboratory at Red Cross War Memorial Children's Hospital for their cooperation and contributions to the success of my programme.

I appreciate the support from Professor Jocelyn M. Hicks and also thank the Turkish Biochemical Society (TBD) for supporting my application for the PSEP, and the staff at Gazi University, Ankara, Turkey for allowing me the time to participate in this programme.



Dr Bahar in company of the staff of the Chemical Pathology laboratory

WHAT IS NGAL? COMMENTARIES NGAL, A 2009 BLOCKBUSTER?

Contributed by Dr. Damien Gruson, Member of the eNewsletter Working group

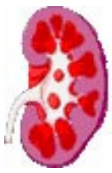
The NGAL assay will enter the IVD market in 2009 and is presented as a very promising assay, both for its clinical value and as a potential blockbuster for IVD companies.

This short article is aimed to sum-up some issues related to the NGAL assay though common questions associated to the release of new biomarkers.

What is NGAL?

Neutrophil gelatinase-associated lipocalin (NGAL) is a protein belonging to the lipocalin superfamily initially found in activated neutrophils, in relation with its role as an innate antibacterial factor.

The lipocalins are a family of proteins which transport small hydrophobic molecules such as steroids, bilins, retinoids, and lipids. It has been found that a subset of the lipocalins can also exert certain immunomodulatory effects. Lipocalins share limited regions of sequence homology and common tertiary structure architecture.



For which disease and what is the level of evidence?

Acute kidney injury (AKI), is a rapid loss of renal function due to damage to the kidneys, resulting in retention of nitrogenous (urea and creatinine) and non-nitrogenous waste products that are normally excreted by the kidney. Depending on

the severity and duration of the renal dysfunction, this accumulation is accompanied by metabolic disturbances, such as metabolic acidosis and hyperkalaemia, changes in body fluid balance, and effects on many other organ systems.

Early diagnosis of acute kidney injury (AKI) is often problematic, due to the lack of suitable early biomarkers of renal damage and kidney function. NGAL appears as an early marker of AKI and two automated assays from two different IVD companies, one using whole blood and the other urine, will be released for the early detection of AKI.

More and more recent articles in peer-reviewed journals confirmed the evidence of NGAL for early detection of AKI.

Mishra et al. (lancet 2005) have studied 71 children undergoing cardiopulmonary bypass and analyzed serial urine and blood samples for NGAL expression. By multivariate analysis, the amount of NGAL in urine at 2 h after cardiopulmonary bypass was the most powerful independent predictor of acute renal injury suggesting that NGAL may represent a sensitive, specific, and highly predictive early biomarker for acute renal injury after cardiac surgery.

In Critical Care in 2007, *Dent et al.*, have studied NGAL plasma levels in 120 children undergoing cardiac surgery and defined AKI (which was defined as a 50% or greater increase in serum creatinine) as the primary outcome of the study. The 2 hour postoperative plasma NGAL levels strongly correlated with change in creatinine ($r = 0.46$, $P < 0.001$), duration of AKI ($r = 0.57$, $P < 0.001$), and length of hospital stay ($r = 0.44$, $P < 0.001$). In this study, plasma NGAL appeared as an early predictive biomarker of AKI, morbidity, and mortality after pediatric CPB.

Another study from *Malysko et al.* (Nephrology 2008) has evaluated serum, urinary NGAL, cystatin C and estimated glomerular filtration rate in hypertensive, normotensive patients with stable coronary heart disease and healthy volunteers. Hypertension is associated with kidney injury as reflected by elevated serum NGAL and cystatin C and authors suggested that NGAL needs to be investigated as a potential early marker for impaired kidney function/kidney injury, especially in patients with another risk factor for kidney damage, namely coronary artery disease.

Makris et al. (CCLM 2009) studied urinary NGAL levels as a predictor of early AKI (first 5 days after injury) in multi-trauma patients. Urinary NGAL was measured using an ELISA technique upon admission and at 24 and 48 h and the presence of AKI was defined by the risk injury failure loss and end-stage kidney classification (RIFLE) criteria. In this study, authors highlighted that urinary NGAL can be used from the 1st day of injury as a reliable predictor of early AKI in multi-trauma patients.

In 2009, *Haase-Fielitz et al.*, have studied NGAL and Cystatin serum concentrations in one hundred adult cardiac surgical patients on arrival in the intensive care unit and at 24 hours postoperatively. The authors assessed have assessed such biomarkers in relation to the development of AKI (>50% increase in creatinine from baseline) and to a composite end point (need for renal replacement therapy and in-hospital mortality). The conclusion of this study was taht early postoperative measurement of serum NGAL was of good value in identifying patients who developed AKI after adult cardiac surgery.

Perspectives

NGAL seems to be a reliable marker to predict acute kidney injury both with urine or blood samples. The incoming challenges for this biomarkers will be related to the analytical performances of the assay (precision, linearity, detection limits, cross-reactivities, reference ranges for different populations), to its potential place in our daily practice and to the success encountered with physicians, to the cost effectiveness of implementation of NGAL and to the validation of NGAL as a screening marker of AKI for populations with high risk of kidney diseases like diabetic patients.

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