AAS E-Newsletter

September 2014

Dear Member

The AAS Annual Scientific Meeting is approaching and this will be a great opportunity for us to meet, network and share our new research discoveries. Abstracts submission for the AAS Annual Scientific Meeting is now open and closes on September 30th. More info about the Annual Scientific Meeting and related symposiums (SCOLAR and New Investigator Symposium) is available below.

This eNews features two articles by AAS members: the first article by Professor David Sullivan on the “Contemporary issues in Atherosclerosis, Thrombosis and Coronary Disease” and the second article by Dr Denuja Karunakaran, who updates us on her post-doctoral research in Canada.

Fatiha Tabet, Editor

AAS ANNUAL SCIENTIFIC MEETING 2014

This year the AAS Annual Meeting is part of the STATE OF THE HEART 2014 which combines:

- AAS
- International Society of Cardiovascular Pharmacotherapy (ISCP)
- High Blood Pressure Research Council of Australia (HBPRCA)
- Australian Vascular Biology Society (AVBS)
- Cardiovascular Special Interest Group of the Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists (ASCEPT CV-SIG)

EARLY BIRD REGISTRATION CLOSES SEPTEMBER 7

ABSTRACTS DUE SEPTEMBER 30 - NO EXTENSIONS

The meeting will be held in November 26-28, 2014 at the Adelaide Convention Centre in South Australia.

Grants and Awards are available for students and young investigators who would like to attend the Annual Scientific Meeting and who are members of the relevant society. These include:

- Student Travel Grants
- AAS Young Investigator Awards (Up to 2 years post doc)
- AAS Student Awards
- AAS BioAssayLINK Award

Visit the meeting’s website for more information on the Scientific Program, Awards and Registration.
http://www.iscp2014.com

NEW INVESTIGATOR SYMPOSIUM: 25 November, Adelaide

If you are a Student or an Early Investigator, the New Investigator Committee of the HBPRCA would like to invite you to attend the pre-conference symposium on career options and development. This is a great opportunity for young investigators to network and get some advice on career and presentation skills from senior colleagues.

Please pass on this message to all the Students and New Investigators that might be interested.

When: 25 November 2014 at 4 pm
Where: Lecture room H2-02 at the Basil-Hetzel Building, University of South Australia (entrance on Frome Rd) Adelaide, South Australia 5000
Program:
4pm Career discussion with Professors Jim Sharman, Stephen Harrap and Manny Noakes, Dr Amanda Sampson
5:15pm Presentation Skills with Professor Jim Sharman
5:35pm Assessing oral presentations with Professor Stephen Harrap
6:15pm: Social Function

Contact Jennifer Seabrook - admin@hbprca.com.au, Phone: 03 5967 4479

To register: Click here

If you haven't renewed by the time you register for the meeting, non-member fees will apply

Annual renewal for AAS is due by March 31 - regardless of when you applied for membership or renewed in the previous year. Please renew now if your membership valid till date is before 31 December 2014.

Full members: Annual Fee of $60 (plus GST if Australian)
Student members: Annual Fee of $30 (plus GST if Australian)
Membership valid until 'Membership Expiration Date' - please click here to renew. Your user name is 'Username' (usually your email)

Want to join HBPRCA or pay both fees together? Please select the option for both memberships and this will automatically submit your application or renew membership.

With my very best wishes

Steven Gieseg, Membership Secretary

SCOLAR 2014

Save the date - Friday 21st November 2014

The SCOLAR Program will showcase research in areas relevant to the AAS Annual Scientific Meeting.

This year it will be held at the **Baker IDI** in Melbourne. A webinar will be available live from the Baker IDI. For SCOLAR Program details please contact the AAS Secretariat via admin@athero.org.au.

CONGRATUALTIONS AAS - IAS PFIZER GRANT AWARDED

The AAS is extremely delighted to announce its success in receiving an IAS Pfizer Grant for the project led by Professor Gerald Watts entitled “Translational research for improving the care of familial hypercholesterolemia across several countries”. This project grant is part of eight projects involving thirteen IAS member societies and their partners, representing countries across 6 continents, who received funding of more than $2 million in order to improve care for patients with medium or high levels of cardiovascular risk, with a particular focus on dyslipidemia.

CONGRATULATIONS AAS!

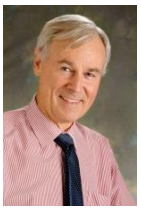
FHAN NEWS- FAMILIAL HYPERCHOLESTEROLAEMIA REGISTRY

The FH Australasia Network (which is a sub-group of the Australian Atherosclerosis Society) and the Western Australian Health Department are currently developing a familial hypercholesterolaemia (FH) registry. This registry will be the place where medical information, family history and other related information from patients is collected and stored. Follow the link below to read more about the FH registry.

Physicians around Australia and New Zealand will invite those with FH and their families to participate - the data entered will be used to facilitate service planning, be utilised within research projects, be useful in preparation for clinical trials and inform best practice and care. At present, the online database is being tested and ethics committee approval is being sought nationally.

The FHAN is delighted to acknowledge financial support from Sanofi Australia and Amgen Australia.

FEATURE ARTICLE - Contemporary issues in Atherosclerosis, Thrombosis and Coronary Disease, David Sullivan: Department Chemical Pathology, Royal Prince Alfred Hospital, Sydney



The Australian Atherosclerosis Society regards continuing education as one of its most important priorities. The program consists of 2 components, highlighting the Society’s commitment to the education of two key groups. The SCOLAR programs addresses the needs of early career scientists whilst the Masterclass series (a term subsequently adopted by other clinical programs) targets issues of relevance to clinicians.

Both programs aim to provide their target audience with insights into issues of mutual importance. The proceedings of the 2012 Masterclass, which was held as a Satellite following the International Hypertension Symposium, are available as a **Webinar on the AAS website at http://www.athero.org.au/webinars.html. The slide sets are also available**. The extent of the information is potentially daunting, so this summary is provided in the hope that readers who were unable to attend the Masterclass will be able to navigate to those portions of the program in which they have particular interest. Hopefully this will promote dialogue between clinicians and laboratory scientists and encourage scientists to imagine new ways in which their knowledge and skills can be applied. (*Ed note: the 2014 Masterclass is also available as a webinar from the same site*)

The topics were chosen to address contemporary issues in atherosclerosis, thrombosis and coronary disease on the basis that clinical presentations usually raise a small number of

fundamental questions. The format for the topics commenced with a 20 minute didactic slide presentation. Mispronunciation of scientific terms was an unavoidable consequence of production constraints, but this component ensured that the information was consistent, accessible and within the time limit. The subsequent component consisted of question and answer clarification of the didactic component, followed by an hour-long case discussion. A brief discussion of each of the eight topics follows in the hope that readers will access those that are either interesting or informative with respect to their own work.

The first module dealt with the topic of introduces the physical chemistry of lipids by discussing "Cholesterol and Triglyceride" in the setting of Mixed Hyperlipidaemia. This common condition is usually a product of gene-environment interactions that often lead to clustering of cardiovascular risk factors in the setting of the metabolic syndrome. If the genetic component is strong, it may fulfil criteria for the diagnosis of Familial Combined Hyperlipidaemia, whilst accompanying endocrine changes may lead to an association with Polycystic Ovary Syndrome. Clinicians are often reluctant to move beyond monotherapy for lipid disturbances, so the need to use combination therapy to control both hypercholesterolaemia and hypertriglyceridaemia is mentioned.

The inverse relationship between plasma triglyceride and HDL cholesterol levels leads into the second topic of reverse cholesterol transport. The physiology of the uptake of cholesterol from membrane rafts is described and the impact on cardiovascular risk by different disturbances in HDL function is considered. The non-lipid anti-atherosclerotic properties of HDL are described and the actions of HDL-raising agents are listed. The evidence concerning the effect of these agents on cardiovascular events is described, but it pre-dates recent trials that failed to show benefit for the HDL-raising agent niacin.
In the absence of compelling evidence for the use of HDL-raising drugs at the present time, the emphasis falls on the use of LDL-lowering treatment. The third module examines this issue from the point of view of the safety and benefit of more aggressive treatment. The use of combination therapy is discussed. This area remains controversial since the release of American Heart Association guidelines which omit the use of treatment targets. These new guidelines also rely on statins with little recourse to second-line agents such as ezetimibe. The argument will receive fresh impetus when the results of the IMPROVE-IT trial, which examines the utility of ezetimibe, are released in November. Clinicians from the AAS have prepared a manuscript for submission to a national journal to discuss these important issues in the Australian context.

The fourth module deals with the important topic of genetic dyslipidaemias, most particularly Familial Hypercholesterolaemia. This dominantly inherited defect affecting the function of LDL receptors accelerates cardiovascular disease by 20 to 40 years. It is regarded as one of the 'low hanging fruit" of cardiovascular prevention because it is eminently treatable. The module emphasises the need for Family Cascade Screening. Australian detection rates are increasing and centres in Perth and elsewhere are providing leadership throughout the region.

The fifth topic is "intermediate risk" which refers to those patients in whom the decision to commence long-term pharmacological treatment for primary prevention of cardiovascular disease is equivocal. It considers strategies including the use of novel biomarkers and non-invasive imaging. The latter is quickly finding widespread application, but it leads to a new clinical entity – patients with sub-clinical cardiovascular disease who lie midway between primary prevention (in patients who have not experienced a clinical cardiovascular event) and secondary prevention (in those high risk patients who have already demonstrated that they are susceptible to their own risk factor profile by suffering an atherothrombotic event.

The frustration of not being able to eradicate cardiovascular disease is considered in module six under the topic "residual risk". This acknowledges that many patients suffer subsequent events even after attaining target levels for risk factor control. Contributing factors such as plasma triglyceride and HDL cholesterol levels have been identified and the need for a comprehensive effort to control all risk factors is promoted. Several potential novel risk factors such as lipoprotein

associated phospholipase A2, homocysteine and lipoprotein (a) are considered in terms of the prospects for their treatment or the results of intervention studies.

The pivotal role of statin therapy demands discussion of the common problem of statin intolerance in module 7. This outlines theoretical considerations based on the mechanism of action of statins and their effect on intermediate metabolites such as those in the mevalonate pathway. Surprising racial differences are noted and exacerbating factors are identified. Re-assurance is provided on topics such as cognitive function because media reporting of the topic is frequently unbalanced. The balance between benefit and harm is assessed for complications such as new onset diabetes.

The final module addresses the problem of massive hypertriglyceridaemia which poses a risk of acute pancreatitis. This represents a potentially confusing change of focus, but it is a relatively common problem with potentially catastrophic consequences. Underlying causes are discussed and these often determine the degree to which effective treatment can be provided. Whilst it may be possible to reduce triglyceride from more than 50 to less than 3 mmol/l, more severe forms can be very resistant to treatment. This area of unmet need has fostered the development of the first officially approved example of gene therapy.

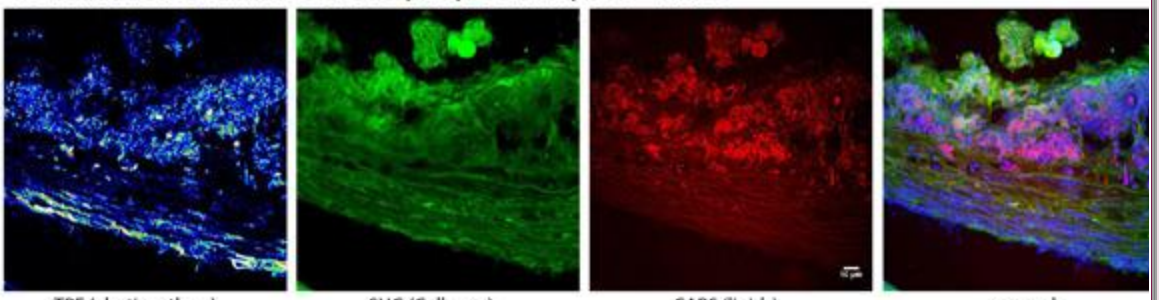
Those who attended the Masterclass weekend reported that they felt they were subsequently better equipped to deal with the most common problems that they were likely to encounter in clinical practice. Many aspects of the management of these clinical scenarios would benefit from further improvements in scientific understanding.

FEATURE ARTICLE - DENUJA KARUNAKARAN SWAPS PERTH FOR OTTAWA BUT KEEPS HER CONNECTION WITH AAS

I am currently pursuing a Cardiovascular Genetics Fellowship with Dr Katey Rayner at the University of Ottawa Heart Institute to further extend my knowledge and skill set in microRNAs and animal models. In the last decade, microRNAs (miRs) have emerged as tiny master genetic regulators that fine-tune gene expression and function. The ENCyclopedia Of DNA Elements (ENCODE) project, which was completed 2012, has demonstrated that over 90% of the human genome contains functional non-coding RNA, including miRs. Although significant strides have been made in recent years to identify miRs, their specific targets and function(s) in human biology and disease, we have only hit the tip of the iceberg. There still remains plenty of scope to unravel the complexities in the mechanistic regulation of gene(s) or entire genetic networks by miRs.

Previous research by Dr. Rayner and colleagues have identified miR-33 as a novel regulator of lipid and fatty acid oxidation pathways that contribute to decreased plaque inflammation, regressed atherosclerosis and in some cases, increased circulating HDL levels, presenting – all of which are promising cardiovascular therapeutic. However, the effects of miR-33 on other genetic networks and pathways affecting cardiometabolic diseases (e.g. atherosclerosis, diabetes and obesity) remains to be elucidated and a key focus in our laboratory. Recently, in collaboration with Dr Mary-Ellen Harper, Dr Kathryn Moore and Dr Ruth McPherson, we have identified several novel miR-33 targets (e.g. PGC-1α) within the mitochondrial genetic network that modulates mitochondrial respiration and function in macrophages and significantly impact on atherosclerotic progression, which can be visualized using CARS microscopy (see figure showing images from control apoE-/- mice). We have also explored anti-miR33 therapy in diet-induced obesity in mouse models. Other research interests include (i) developing novel imaging tools and techniques such as microPET to visualize and study macrophages and atherosclerotic plaques; (ii) understanding the complexities of macrophage function, retention and clearance relevant to atherosclerosis; (iii) the role of microRNAs in macrophage inflammation and (iv) platelet microRNAs as biomarkers for human diseases.

Visualisation of atheroclerotic plaques in ApoE-/- mice



TPF (elastin, others) | SHG (Collagen) | CARS (lipids) | merged

Meetings and news from other places

Latest IAS Newsletter: international news and literature summary at your fingertips. Create your own account (it's free) for access to all IAS resources.

Global Recommendations for the Management of Dyslipidemia Slide Kit available

The **8th International Conference on Heme Oxygenases, BioIron and Oxidative Stress** will take place in Sydney, Australia on October 8th to 11th, 2014. The conference will build on previous Heme Oxygenase Conferences and focus on the biology of heme oxygenases and its application to medical research, as well as the closely related areas of biological iron and oxidative stress. Heme Oxygenase 2014 will bring together leading international and national scientists, clinicians, young investigators and students and will showcase the latest advances in basic and applied science.

Click here for information and registration

The Victor Chang Cardiac Research Institute is celebrating their 20th anniversary - this year's symposium and Princesses' Lecture are highlights. The theme of the 2014 Symposium is **UNLOCKING THE GENETIC CODE OF HEART DISEASE**. It spans the gamut from basic science to clinical medicine with a focus on genetics and mechanisms of congenital and adult heart disease, and new heart failure therapies including stem cells and devices. We have a great line up of international, national and local speakers. The Princesses' lecture will be given by Leslie Leinward, University of Colorado, Boulder, USA.

Click here for information and registration. October 23-25 2014

The **2nd World Congress of Clinical Lipidology** will take place in Vienna, Austria from 5-7 December, 2014. This extraordinary event will provide state of the art educational lectures in the field of clinical lipidiology, focusing on practical lipid management including difficult to treat hyperlipidemias, genetic dyslipidemias, screening, dietary and nutraceutical approaches and case studies. Major emphasis will be given to new therapeutics, diagnosis and management of high risk patients. This congress is recognized and widely known throughout the world as an outstanding and contributing to clinical lipidology research.

The Cuban Society of Pharmacology and the International Union of Basic and Clinical Pharmacology (IUPHAR) are organizing the First International Convention IMMUNOPHARMACOLOGY–VACCIPHARMA 2015, scheduled for June 14-19, 2015 at the Meliá Marina Varadero Hotel, in Varadero beach, Cuba. In the framework of this great congress, they are organizing the First **Symposium on Atherosclerosis** from June 15-17.

If you speak/read Spanish, click here. If not, click here.

The **PCSK9 Forum** is an independent, not-for-profit initiative which offers clinicians and scientists worldwide FREE MEMBERSHIP by simply registering at their website.

Contact AAS Secretariat

Jennifer Seabrook at Meetings First
PO Box 448
YARRA JUNCTION VIC 3797
Phone +61 3 5967 4479
Fax +61 3 9015 6409
Email admin@athero.org.au