In this Issue

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Special Honour for Dr. David Eisner by the IACS European Section</td>
<td>2</td>
</tr>
<tr>
<td>The Effects of a Natural Source of Polyphenols on the Function of the</td>
<td>3</td>
</tr>
<tr>
<td>Endothelium, the Guardian of Vascular Health</td>
<td></td>
</tr>
<tr>
<td>Winnipeg Regional Health Authority and St. Boniface Research Welcomes</td>
<td>11</td>
</tr>
<tr>
<td>Dr. Ross Feldman</td>
<td></td>
</tr>
<tr>
<td>Four Awards for Excellence in Cardiovascular Sciences</td>
<td>12</td>
</tr>
<tr>
<td>Dr. Dobromir Dobrev Elected as Fellow of the Academy</td>
<td>14</td>
</tr>
<tr>
<td>Call for Nominations for IACS Officers and Council Members</td>
<td>15</td>
</tr>
<tr>
<td>CV Network Editorial Board</td>
<td>15</td>
</tr>
<tr>
<td>Partnering Journals of the IACS</td>
<td></td>
</tr>
<tr>
<td>IACS Activity Report</td>
<td>16</td>
</tr>
<tr>
<td>19th Annual Naranjan Dhalla Cardiovascular Awards</td>
<td>17</td>
</tr>
<tr>
<td>IACS Officers and Executive Council Members</td>
<td>18</td>
</tr>
<tr>
<td>4th Annual Yetta and Jack Levit Distinguished Lecture</td>
<td>19</td>
</tr>
<tr>
<td>Announcement for IACS-North American Section Meeting, 2018</td>
<td>20</td>
</tr>
<tr>
<td>IACS North American Section Meeting Report: Orlando, USA</td>
<td>21</td>
</tr>
<tr>
<td>IACS European Section Meeting Report: Pecs, Hungary</td>
<td>27</td>
</tr>
<tr>
<td>Heart Health Forum in Kragujevac, Serbia</td>
<td>29</td>
</tr>
<tr>
<td>Report on the XXVII Scientific Forum of the International Congress of</td>
<td>30</td>
</tr>
<tr>
<td>Cardiovascular Sciences: Campo Grande, Brazil</td>
<td></td>
</tr>
<tr>
<td>World Heart Day Celebrated in Trivandum, India</td>
<td>32</td>
</tr>
<tr>
<td>Perspective on Current Status of Cardiovascular Diseases in Turkey</td>
<td>33</td>
</tr>
<tr>
<td>Turkish Connection in Cardiovascular Surgery: Bridging Asia to Europe</td>
<td>36</td>
</tr>
<tr>
<td>CARRS Blare – “Step on the Gas”</td>
<td>37</td>
</tr>
<tr>
<td>Molecular Insights of Endurance and High Intensity Interval Training</td>
<td>39</td>
</tr>
<tr>
<td>on Cardiovascular System</td>
<td></td>
</tr>
<tr>
<td>Second Announcement IACS India Section Meeting, Madurai Tamil Nadu</td>
<td>41</td>
</tr>
<tr>
<td>Second Announcement of the IACS 5th European Section Meeting:</td>
<td>43</td>
</tr>
<tr>
<td>Bratislava, Slovakia, 2018</td>
<td></td>
</tr>
</tbody>
</table>
The European Section of the International Academy of Cardiovascular Sciences (IACS) presented a medal to David Eisner for the 2017 Distinguished Lecture Award in Pecs, Hungary during their annual meeting held in September 28-30, 2017.

David Eisner has been at The University of Manchester, UK, since 1999 and has held the British Heart Foundation Chair of Cardiac Physiology since 2000. From 1976, he did a PhD at Oxford with Denis Noble graduating in 1979. His PhD thesis was entitled “The Effects of Sodium Pump Inhibition on the Electrical and Mechanical Properties of Mammalian Cardiac Muscle”.

Dr. Eisner was on the Faculty at the University College London from 1980 to 1990, where he was awarded a Wellcome Trust Senior Lectureship, and then at the University of Liverpool (1990-1999) before moving back to his city of birth Manchester. From 1982 to 1990, he was also a Visiting Professor at the University of Maryland, Baltimore, USA.

Dr. Eisner has received the Pfizer Award in Biology, The Wellcome Trust Physiology Prize, the GL Brown Lecture of The Physiological Society and both the Keith Reimer and Peter Harris Awards of the International Society for Heart Research. He has served as Chairman of the Editorial Board of The Journal of Physiology. He is currently Editor in Chief of the Journal of Molecular and Cellular Cardiology. He is President of The Physiological Society.

His research has focused on the basic mechanisms that regulate intracellular sodium (Na) and calcium (Ca) concentrations. He demonstrated the steep dependence of contraction on intracellular Na concentration and hence the role of Na-Ca exchange in mediating interactions between Na and Ca regulation. After developing a method to measure the Ca content of the sarcoplasmic reticulum (SR), he characterized the mechanisms responsible for the normal, stable control of SR Ca content. His recent research has focused on the mechanisms responsible for the generation of the diastolic Ca waves that are known to be responsible for some cardiac arrhythmias and how therapeutic strategies might be developed to abolish these arrhythmias.

It is no exaggeration to say that Dr. Eisner's work has transformed the field of cardiac excitation-contraction. His concept of Ca auto-regulation has clarified ideas associated with the role of ryanodine sensitization in the control of cardiac contractility. His more recent work on intracellular Ca waves has put this area on a firm quantitative basis and addressed the cellular mechanisms of arrhythmias. Most recently, he has been studying the mechanisms responsible for the control of diastolic Ca concentration.
The Effects of a Natural Source of Polyphenols on the Function of the Endothelium; the Guardian of Vascular Health

By: Dr. Paul G. Hugenholtz, PhD and Dr. Raffaele De Caterina, PhD
Erasmus Medical Centre Rotterdam, The Netherlands
Email: pghugenholtz@gmail.com; rdecaterina@unich.it

“Dans les champs de l’observation, le hasard ne favorise pas que les esprits préposés”.
“In the world of observations, luck will help only those minds who are looking for something”.
Louis Pasteur

It is generally accepted that cardiovascular disorders (CVD) (metabolic syndrome, hypertension, atherosclerosis, diabetes) are the main causes of death and disease in the developed - and soon will be in the developing-world. Worldwide each year millions die unnecessarily or prematurely. This also leads to great loss of productivity in the economy and ever rising costs of medical treatment. Currently, 46% of all deaths in the EU are due to CV disease, with more deaths in women than men. Yusuf et al (1) estimate 18 million deaths worldwide and at least 2-3 times as many individuals who experience non-fatal CVD events. Primary prevention rather than therapy, once symptoms and signs have appeared, is the most logical approach and should, in principle, also provide the cheapest solution. Efforts in this direction by the World Health Authorities and National Governments have met only with limited response and success. While cigarette smoking has diminished in some parts of the world, dietary habits have barely changed, in fact, in some countries they have worsened, leading to a recognition of the “Metabolic Syndrome” as a precursor of cardiovascular sequelae.

It is, however, not generally appreciated (2) that the human body as it has evolved over the past 50,000 years from its original “menu” of fish, fowl, game, berries, all products mainly found in Nature has -rather suddenly- been confronted particularly around the year 1700 with newer foodstuffs such as meat from domesticated animals and dairy products, particularly after tuberculosis was “eradicated”. In the past 100 years this trend has exacerbated with refined derivatives such as blanched flour, pure sugar, rich dairy products and red meats, all substances in which many essential nutrients were artificially removed or altered to satisfy modern tastes rather than boosted to provide healthier essential food components. The “McDonalds craze” is a prime example. It has been argued that, in this “short” time span, the human body has not had sufficient time to adapt to these sudden and rather drastic changes in nutrition. In fact, it is now accepted that deficiencies in micronutrients can lead to the appearance of specific diseases. In the past, scurvy and beri-beri were prominent examples, caused by lack of vitamin C and the B complex and we will argue that a similar type of relative deficiency may be one of the causes of atherosclerosis (Fig. 1).
protective effect on the arterial vessel wall. Might the saying “you are as old as your arteries are” be true after all? Corder et al (4) ascribed the beneficial action of this wine to its reduction of the endothelin levels, a vasoconstrictive compound. In subsequent work from his group an extensive analysis of wines from different regions and grapes, demonstrated 2 Italian wines from the region around Perugia, to have even higher oligomeric proanthocyanidins levels. In the same up-to-date (2014) paper the various options for the atheroprotective mechanisms are discussed in great detail providing substantial experimental support for the still sparse clinical data.

Other epidemiological studies have meanwhile supported the concept that moderate consumption of red wines (and not white wines), some of which contain a high concentration of polyphenols, leads to a reduced risk of coronary heart disease. Their exact mechanism(s) of action, however, remained unclear. In their seminal paper in 2004, Stoclet et al (5) of the Institut Pasteur at the University of Strasbourg in France had concluded that of the 500, or so, polyphenol molecules so far identified in wine, some 35 have cardiovascular activity, such as anti-inflammatory, anticoagulant and antithrombotic effects, others act as antioxidants, but most of all that as a natural mixture they stimulate the production of nitric oxide (NO) which controls the adequacy of blood flow throughout the entire body and its organs and protects various intracellular functions of the endothelium, promoting endothelial integrity. From the same Institute, the group around Schini-Kerth has detailed the exact biochemical pathways as far as they were established up to 2012 (6) and 2016 (7).

Just at the time Ridker et al (8) showed in the 2008 JUPITER trial, the significance of CRP as a factor (and predictor), in the development of human atherosclerosis in a group of patients with normal LDL and elevated high sensitivity Complement Reaction Protein (hs-CRP) levels. A few years earlier, Estruch and coworkers (9) in Barcelona had compared in young healthy cardiologists the effects on the human endothelium of a concentrate of Merlot wine to a similar quantity of alcohol in pure gin. They demonstrated that the Merlot extract reduced towards normal a range of biomarkers, including hs-CRP, VCam, ECam and IL-1, normally associated with endothelial inflammation and dysfunction, whereas the pure alcohol could not do so. They concluded that the polyphenols in their wine extract had a “protective” effect even on the arterial wall of these apparently healthy volunteers. Meanwhile incidental experimental evidence in mice and guinea pigs showed that induced atherosclerosis could actually be reversed with disappearance of plaques after feeding wine polyphenols over a relatively short period. These observations were recently confirmed by Berbée et al (10) for resveratrol, one of the polyphenols acting on the endothelium. In these experiments, the effects of resveratrol equaled those of atorvastatin.

The growing experimental evidence, as well as multiple other reports in the medical literature on human data, convinced our group to conduct the crucial experiment in humans with the characteristics of the Metabolic Syndrome. This disorder may be considered as the precursor of atherosclerosis, since the patients already show signs of endothelial dysfunction while still asymptomatic. In this trial, carried out at the Amsterdam University Medical Center (AMC), we could for the first time ever in patients demonstrate that a dry powdered mixture of naturally occurring wine grape polyphenols contained within the dried skins and pits, decreased two major indicators and, probably causative, factors of endothelial dysfunction and inflammation, Monocyte Chemoattractant Protein (MCP-1) and Macrophage Migration Inhibitory Factor (MIF). The activity and efficacy of the powdered polyphenols apparently leads to a suppression of the early inflammatory phase of atherosclerosis well before hypercholesterolemia becomes a dominant factor as described in an article in the British Journal of Nutrition in 2011 (11).

So, inflammation, as clearly declared by Ross in 1999 (12) to be the fundamental cause of atherosclerosis and as proposed as hypothesis by Libby et al (13) in 2001 and 2010 (14), is now scientifically accepted as a, if not the, main and early cause of atherosclerosis. In fact, it may play a dominant role right at the onset of atherosclerosis. Accordingly, elevated levels of pro-inflammatory chemo- and cytokines have been found to be associated with increased cardiovascular risk, some are now even considered predictive. Therefore, anti-inflammatory strategies, whether by nutriceutical or pharmaceutical means, hold great promise for cardiovascular disease prevention, perhaps even eradication, beyond the current lipid lowering or lifestyle change interventions, the more so if they can be produced economically and have no side effects. Münzel et al (15) have also speculated on oxidative stress as a therapeutic target in cardiovascular disorders in 2010. The inflammation hypothesis of atherosclerosis has taken many years to find final acceptance, as was dramatically shown by the reactions at the last ESC congress in Barcelona (2017). More about this later…

The Metabolic Syndrome, a major risk factor complex for atherosclerosis and cardiovascular disease, is characterized by a chronic low-grade inflammatory state beginning as early as puberty (Fig. 1). These inflammatory conditions have been attributed to inappropriate activation of NF-kB (a major cytokine) and
subsequent augmented production of downstream pro-inflammatory cytokines and chemokines such as hs-CRP, the Interleukins (IL-1 & IL-6), Tumor Necrosis Factor α (TNFα) and, more recently, MIF and MCP-1.

These two factors, MCP-1 and MIF play a crucial role in the early inflammatory process which currently is held responsible for the onset of what eventually becomes atherosclerosis. We believe that the function of the red wine derived polyphenols (RWP’s), is to slow down or avoid the monocytes from being attracted to the damaged endothelial surface and to inhibit macrocytes, once they become macrophages, from migrating in and outside the sub-endothelial space and, forming the “fatty streak”, the initial phase of what later becomes a plaque. This sequence of events is displayed in the cartoons in Fig. 2 and is originally published in a beautiful two and a half page vignette by Linda Curtiss entitled "Reversing Atherosclerosis" in the New Engl. J. of Medicine (16, Fig. 3). It demonstrates clearly the sequence of events in the subendothelial space following the breakdown of endothelial integrity as well as the points where the various polyphenols can restore the inflammatory process and promote healing.

Stage 1

Stage 2

Stage 3

So, the Polyphenols from Red wine remnants In the Metabolic syndrome with Endothelial dysfunction (PRIME) (11) study outcome data are convincing in two ways. While our original assumption and study hypothesis at that time were that the polyphenols would significantly affect most of the classic biomarkers and indicators of atherosclerosis was not confirmed, on the contrary (and to our great satisfaction), the two earliest agents of inflammation, MCP-1 and MIF, were (Fig. 2). They were significantly (p<0.05) suppressed even at the low daily dosage of 500mg and were also decreased during provocative testing of the Flow Mediated Dilatation procedure on the forearm. This indicates that naturally occurring substances, such as the widely available polyphenols in various fruits, but often lacking in sufficient amounts in the modern diet, can reduce the earliest evidence of inflammation of the vascular wall in individuals (or animals), prone to develop atherosclerosis and its sequelae, myocardial infarction and stroke, by restoring the normal function of the endothelium. One is reminded of another age-old dictum: “an apple a day, keeps the doctor away”. Such a product now exists in powdered form and was used in our experimental and clinical investigations (see website www.in-vino-veritas.nl). It fits nicely in the current recommendations to treat (or better prevent) the multifactorial disease with a multifactorial approach (Fig. 4).

Our clinical study (11) was extended in vitro to explore the effect of higher doses of polyphenols on these inflammation indicators in blood samples of the same individuals who participated in the PRIME study. This analysis confirmed the strong suppressive effect of polyphenols in higher dosages also on the ultimate inflammation indicator, IL-6, positioned further down the chain of inflammation indicators and by their nearly complete inhibition of TNFα (Fig. 3). This suggests also that the 500mg dose tested in the PRIME trial may have been suboptimal and that at higher doses polyphenols could have affected several other of the indicators in table 1 in a more convincing manner. This in fact had earlier in 2006 already been found in our Leiden Apo-e genetically

Figure 2 - In-Vino-Veritas Extra and atherosclerosis: 3 successive stages are depicted

Figure 3 - Mode of action of polyphenols – The red arrow indicates the known action of resveratrol: inhibition of ROS production. The black arrow indicates action by other polyphenols by reducing the inflammation of endothelial cells (accepted from ref. 7)
modified mice within four weeks when higher dosages of the polyphenol mixture were provided (unpublished data available upon request).

Table 1 - Main characteristics of the polyphenols

In 2012, Chiva-Blanch et al (17) of Estruch’s group in Barcelona extended their 2004 observations on the action of RWP’s versus pure alcohol to 67 patients with existing cardiovascular disease. In this randomized cross-over trial they found that RWP’s decreased serum concentrations of several pro-inflammatory chemokines such as E-cam, E-selectin and II-6, whereas alcohol by itself did not do so. These data therefore extend our observations from young patients with the Metabolic Syndrome, as a precursor to atherosclerosis, to those older individuals actually with evidence of existing disease. Tomé-Carneiro et al (18) further demonstrated in 75 patients at high risk for atherosclerotic vascular disease already on treatment with statin therapy, that a resveratrol enriched red wine grape derived food supplement lowered hs-CRP by 26% (p<0.03) as well as TNFα -19.8%, PAI-1 -16.8% and the Interleukin-6/10 ratio -24%, all factors indicating that polyphenols can have a supplementary role next to statins or other agents primarily affecting lipid metabolism such as PUFA’s.

The similarity in these observations would suggest that therapy against the root cause of the atherosclerotic process should firstly be aimed at restoring endothelial integrity by reducing inflammation and not at lowering cholesterol levels only (Fig. 4). The data suggest that multiple actions can be achieved by our nutraceutical (table 1) and are not only reserved for a pharmaceutical such as statins or PCSK-9. This provocative proposition with many advantages such as absence of toxicity and low-cost would seem to require a large scale prospective randomized trial (RCT).

While conventional pharmacologic development for promising new compounds does require RCT’s of longer duration and with several thousand participants to provide ultimate answers with “hard endpoints” according to classic epidemiologic theory (to comply with the so called “evidence based medicine”), such as JUPITER (8) and ASCOP, clearly no industrial enterprise would provide the funds for such an undertaking when a new food supplement is at issue. Actually, such a requirement is generally absent in the food industry. Even in the case of fortified margarines they have never been demonstrated although these food products are already widely available. Since the polyphenol mixture in powder or pill, or by addition to a fruit drink is very cheap and therefore “unprofitable”, such a trial would be impossible to finance unless government sources would be provided. We have tried to obtain these repeatedly but to no avail. Medical authorities do not seem to comprehend what real prevention at the actual origin of a disease means, let alone could provide significant savings.

Furthermore, adherence to the strict requirements demanded by the RCT or even to its very design, is increasingly questioned when applied to food substances. There is the impossibility of a true placebo if the food component to be tested is of quintessential nature. Did mothers’ milk ever get tested in babies against the placebo of, say, H₂O? Then there is the question whether one ever should demand from a trial with food components, the strict requirements agreed upon for a RCT with a pharmaceuticals. Hardly any of the current food items of the western diet have been tested in this way. An extensive paper on these aspects concluded that the adherence to the presuppositions underlying the RCT method are impossible when food components are studied rather than pharmaceutical substances (19).

But epidemiological evidence came unexpectedly to the rescue with the publication of the EPIC HEART study in the June 2011 issue of the European Heart Journal(20). This publication from a large cohort (313,074 initially clinically healthy individuals) showed in those eating 400-600 grams of fruit and vegetables regularly, over the 8.4 year duration of the study, that expected cardiovascular
mortality could be reduced by over 20%. Further analysis (21) of the type of fruit consumed revealed this benefit only in those eating “other fruit”, a category reserved for red berries, grapes etc. (p<0.06) and not from citrus, hard-skinned fruit or bananas. It is tempting therefore to speculate that this huge observational trial confirms that polyphenols isolated from the red wine grape remnants such as used in the PRIME trial (11), were also present in that EPIC HEART subgroup which ate daily 400-600 grams of the “other fruit” category for the duration of the study. However, it should be emphasized that only in that subgroup (18% of the total), which accomplished eating this large amount of fruit on a daily basis for 8.4 years, where the 30% reduction in cardiovascular mortality occurred.

And all along the time the EPIC Heart data were being collected, Estruch and his group carried out, unbeknownst to most, THE “conclusive, randomized” and prospective large scale trial that had been required by some in the scientific community. When the PREDIMED(22) results appeared on the 25th of February 2013 on the website of the New Engl. J. of Med., they provided really impressive reading. 7,447 Spanish persons who sometimes were overweight, often were smokers, had diabetes or other C.V. risk factors, but appeared “healthy” were divided into three groups and followed for nearly five years. The study was prematurely terminated because of an unexpected early and highly beneficial effect on clinical outcome. A 30% reduction in myocardial infarction, stroke or cardiovascular death occurred in two of the three groups, both of which had adhered to a Mediterranean diet in contrast to the third group, which was assigned to a diet low in fat only. The Mediterranean diet consisted of three servings daily of fruits, at least two of vegetables per day (including beans, peas and lentils) and at least three servings of fish per week. They ate white meat instead of red, and drank regularly red wine with meals. One group was served in addition four table spoons of extra virgin olive oil (containing large quantities of the polyphenols, such as oleuropein and hydroxytyrosol) per day, while the third group consumed an ounce of mixed nuts (walnuts, almonds or hazelnuts) a day next to their Mediterranean diet. This group, in which no effect was seen, had consumed a regular low-fat diet with strict dietary counseling to faithfully adhere to the reduction in consumption of fats.

The authors believe it was the entire package of the Mediterranean diet components, not just the olive oil or nuts, which resulted in the significant positive outcome. We believe with them that it is the Mediterranean diet, but in particular when fortified with olive oil and red wine, which provides the necessary (optimal?) amount of polyphenols as is consistent with our hypothesis and mechanisms described.

Presumably the results in the PREDIMED and EPIC Heart study were achieved by consuming a significant and substantial amount of polyphenols present in their vegetable/fruit products, comparable to those found after consuming the red wine grape residue only in the PRIME trial. In this regard, one is reminded of the Editorial by Marmot in the May 2011 European Heart Journal (20), “why don’t they make a pill of these substances, it would make life so much easier”. He could at the time not have been aware, that his musings were to be supported by the results of the PRIME trial published shortly afterwards (11). The variety of polyphenols in food stuffs, for example in two major “suppliers” such as red wine and beer, underwent exhaustive analysis from 116 articles by Estruch and his group. Their findings strongly support either the use of the natural products, such as those enumerated in their PREDIMED trial (22) in sufficient amounts or by the development of extracts as suggested by Marmot in his Editorial on the EPIC-Heart findings and as carried out by us in the PRIME trial. The latter appears to be preferred, rather than the search for one specific substance, “the magic component” such as is/was being done with resveratrol and warned against by Tomé-Carneiro from the group around Espín (23). Even so, identification of the main characteristics of individual polyphenols within this food supplement will be an ongoing effort.

Our hypothesis was recently further strengthened by two huge analyses, one on each side of the Atlantic ocean, which have measured the specifics of food components consumed and their effects on CVD (24, 25). It was found among several hundred thousand healthy individuals, that those eating foods with the higher amounts of polyphenols had significantly lower mortalities. While these data are consistent with the earlier epidemiological findings, the ultimate proof of these benefits, both in qualitative and in quantitative aspect, was to be provided by the mega meta-analysis carried out by Wang and coworkers and published in the Br. J. of Medicine of July 2014 (26). Among 833,234 participants there were 11,512 deaths due to cardiovascular diseases and cancer during follow-up periods of 4.6 to 26 years. Higher consumption of fruit and vegetables was significantly associated with a lower risk in all-cause mortality. Pooled hazard ratios were 0.95 for each increment of one serving of fruit and vegetables with a maximum of around five servings a day (Fig. 5). The authors conclude that while higher consumption of fruit and vegetables is associated with a lower risk of mortality from all causes, it is particularly so from cardiovascular diseases. Their results support current recommendations to increase their consumption to promote health and overall longevity. In a recent newspaper article in the Guardian (in February 2017), the preliminary results were shown of a study similar to EPIC-Heart (20) and that by Wang et al (26). While
Wang’s data showed a near linear stepwise reduction of 6 steps of 5% each in mortality reduction to a maximum of around 30%, these more recent data extended these benefits from up to 10 helpings by being associated with a 50% reduction in mortality, an astounding achievement! A comprehensive review of research in 2012 is provided by Arranz et al (27).

Talking about resveratrol and ongoing fundamental research, it may have appeared strange that this review has only at the end referred to resveratrol and its alleged central role. It is that very fact, the tendency in the literature and presentations to present this one polyphenol among a whole range as THE representative molecule, which has led to confusion and even rejection of this emerging group of substances, quite undeservedly!

Sandoval-Acuna and coworkers, on the basis of 116 articles, argue convincingly that most of the main beneficial functions of the mixture of polyphenols may lie in their collective actions on preserving mitochondrial function in several organs (31). Even more supportive of the need for intensive research on all humanly active polyphenols are Bitterman and Chung who address the controversies in the metabolic effects of resveratrol. Their review includes 41 articles and emphasizes that further trials in the clinical area are required (32). Hopefully in the design of these future investigations, as Calabriso and coworkers (33, 34) as well as Khan (35) from the group around Corder show, the requirements for the development for polyphenols as a pharmacon should and hopefully will be strictly separated from those conditions which are appropriate for a food supplement. This mix-up in requirements has been a major factor contributing to much confusion in recent years and delay in their introduction in the alternative treatment options.

As this article was being written two exhaustive literature reviews were accepted for print (36, 37). Both testify to the enormous amount of work that has appeared in print in the last decade. Both reflect the point of view of the respective authors and, as a consequence, are not necessarily complete from our cardiologic point of view.

Of the 384 articles reviewed by Costa et al (36), only 104 relate to cardiology, yet of these only a few correspond to our reference list of which 32 are deemed important.

Haseeb and coworkers (37) wrote a review on wine and cardiovascular health. More attention is paid to the role of alcohol over the past decade, than to that of the polyphenols or their crucial mode of action on endothelial dysfunction, let alone to epidemiological evidence of morbidity and mortality reduction.

Our review would not be complete without reference to the major contribution by Ridker and his many coworkers (38) to the scientific program of the European Society of Cardiology, held this August 2017 in Barcelona. “A mile stone in lowering heart disease risk” was the headline in the August 29th issue of the New York Times International Edition. And under the non-informative photograph of an obese patient, the sobering anti-thesis: “Research funded by the drug’s maker, has found that Canakinumab, which costs about $200,000. a year, may reduce the risk of heart-attacks in people, who already have had one”. Major contribution? With a barely significant drop in cardiac events in this 4-year study in 10,060 patients and with no difference in mortality…hardly major!

CV Network Vol 16 No 4 • December 2017 www.heartacademy.org 8
Yet, more important in this CANTOS study (38) is the demonstration, that despite the presence of a lipid lowering regime with statins, that by reducing inflammation of the vascular wall, a significant reduction in cardiac clinical events can be achieved. Indeed, a paradigm shift to which the clinical study by Tomé-Carneiro had already alluded in 2012 (18). Think about it, inflammation of the endothelium as a major source for the onset of atherosclerosis (an idea which has been around since 1999 (12)) has now been confirmed in a large scale clinical study, as requested by many in the lipid "lobby" (39). However, CANTOS now has also proven in a population already on statin therapy and with “normal” cholesterol levels, that reduction of the inflammatory state of the endothelium can bring further benefits. So, why not begin at the earliest opportunity of endothelial dysfunction by adapting one’s diet? Or, if unwilling or difficult to achieve a dietary change – by supplementing an adequate amount of polyphenols.

We propose therefore, with Calabriso and his group (33) in their excellent comprehensive review of the status in 2015, that in the absence of sufficient funds for a large-scale, prospective, randomized trial of sufficient (>5 years) duration, comparing the "average modern day" diet without added polyphenols with one in which the same diet composition is complemented with a polyphenol powder in a daily dose of at least 500mg, the following recommendations to individual patients diagnosed with, or suspected of, atherosclerotic cardiovascular disease, can be made:

- EITHER to consume and strictly follow the "Mediterranean diet" with at least 2 tablespoons of virgin olive oil a day as outlined by Estruch in the PREDIMED trial (22) and supported by the study by Scoditti referred to in the post scriptum 1;
- OR to select, at the choice of the individual, her or his own diet but with at least 5 to 6 servings of appropriate fruits and vegetables with a total weight of 600 gram per day, as proven by the EPIC-heart study (20) and suggested by the Wang meta-analysis (26);
- OR, if these strict conditions CANNOT be complied with, by a diet, chosen by the individual with appropriate caloric content and composition (Fig. 2), BUT supplemented by the daily intake of 4-6 glasses of 70ml good red wine per day, or when the alcohol content is eschewed, of a Polyphenol mixture, such as In-Vino-Veritas, in a dosis of at least 700mg/day to replace the red wine as the source of the polyphenols, as demonstrated by our PRIME study (11).

The pragmatic efficacy of this approach and the complete absence of complications, make this the best advice physicians can give today (November 2017) in order to preserve normal endothelial function and thereby achieve early prevention against atherosclerotic vascular disease.

References

Dr. Ross Feldman

In August, 2017, Dr. Ross Feldman was appointed as the new WRHA Medical Director of the Cardiac Sciences Program. Dr. Feldman comes to Winnipeg from the Memorial University of Newfoundland where he was Professor of Medicine and Chair, Discipline of Medicine.

Dr. Feldman received his medical degree from Queen’s University, his training in Internal Medicine at University of Toronto and a fellowship in Clinical Pharmacology from Vanderbilt University. Dr. Feldman has also held teaching positions at the University of Iowa, College of Medicine in Iowa City and the University of Western Ontario and Chair, Division of Clinical Pharmacology in the Department of Medicine at the University of Western Ontario. As well, he also served as Scientific Director of the Robarts Research Institute at Western. Dr. Feldman’s research program will focus on Women’s Health; specifically, the development of innovative strategies in the primary prevention of cardiovascular disease. He is the author of more than 200 articles in the fields of cell signaling, adrenergic pharmacology and management of risks factors important in the development of heart disease and strokes. Dr. Feldman has held leadership roles in a number of scientific and professional organizations in the disciplines of medicine and pharmacology including Vice-President of the American Society of Clinical Pharmacology and Therapeutics and Chair of the Clinical Pharmacology Division of the American Society of Pharmacology and Experimental Therapeutics. He has served as Governor of the Ontario Chapter, American College of Physicians, Chair of the Scientific Review Committee of the Heart and Stroke Foundation of Canada, chair of the Research Committee and a member of the Board of Directors of the Heart and Stroke Foundation of Ontario and the past Governor of the Ontario Chapter, American College of Physicians. He was founding president of both the Canadian Hypertension Education Program (CHEP) as well as its successor, Hypertension Canada, where he continues to be active at the public policy level in improving hypertension management and control rates in Canada. He is currently an Associate Editor of both the Canadian Journal of Cardiology and Canadian Journal of Physiology and Pharmacology and past Editor-in-Chief of Pharmacological Reviews.

Throughout his career, Dr. Feldman has earned numerous awards and scholarships; he is the recipient of a Career Investigator Award from the Heart and Stroke Foundation of Ontario, a George Morris Piersol Research and Teaching Scholarship from the American College of Physicians, the Burroughs-Wellcome Clinical Pharmacology Award, the Senior Investigator Award from the Canadian Society for Clinical Pharmacology as well as the Distinguished Service/Research Award of the Canadian Hypertension Society. He received the George Fodor Award for outstanding contributions to the prevention and control of hypertension (2010) and was awarded the Ken Brown Research Award from our own Institute of Cardiovascular Sciences.

Bill Peters
Manager, Communications & Media Services,
St Boniface Hospital Albrechtsen Research Centre
Email: billp@sbr.ca
Four Awards for Excellence in Cardiovascular Sciences
Presented at the IACS-European Section Meeting in
Pecs During Sept 28-30, 2017

Edward Carmeliet Honoured with Andras Varro Award for Excellence in Cardiovascular Sciences

Dr. Edward Emiel Carmeliet received his M.D. degree in 1955 from the University of Leuven and completed his Ph.D. in 1961. From 1958-1961, Dr. Carmeliet was a Visiting Scientist at the University of Bern, Switzerland with Drs. S. Weidmann and A. von Muralt in the Laboratory of Physiology. He was also a Visiting Professor at Duke University North Carolina in 1972 to 1973. From 1967-1995, Dr. Carmeliet was Full Professor, University of Leuven and became Professor Emeritus at University of Leuven in 1995. He was the recipient of an Honorary Doctorate in 1999 from the University of Bern. Dr. Carmeliet has been the recipient of several awards including the Laureate Wedstrijd voor Reisbeurzen of the Belgian Government (1956), the Laureate J.B. van Helmont of the Royal Academy of Medicine (Belgium), Binnenlandse Francqui-leerstoel (Chair Francqui) from the University of Gent (1977-1978) and the Prof. Pierre Rijlant Prize in Cardiac Electrophysiology in 1991. Dr. Carmeliet has been/is a member of several prestigious organizations including the Belgian Society of Cardiologists, British Physiological Society, American Society of General Physiologists, European Society of Cardiology, ISHR and the AHA (Fellow Basic Science Council). He also serves on the Editorial Boards of several notable and highly ranked peer review journals including, Circulation Research and British Journal of Pharmacology. Of note, Dr. Carmeliet served as Consulting Editor (1990-1998) for the Journal of Cardiovascular Pharmacology and Associate Editor (1987) of Journal of Molecular and Cellular Cardiology. To date, he has published over 200 papers.

Martin Morad Honoured with Jan Slezak Award for Excellence in Cardiovascular Sciences

Martin Morad, Ph.D., is Professor of Regenerative Medicine and Cell Biology at the Medical University of South Carolina (MUSC) and the University of South Carolina (USC) and Professor of Bioengineering at Clemson University. He is the Director of the Cardiac Signaling Center and holds the BlueCross Blue Shield of South Carolina Endowed Chair in Cardiovascular Health, which includes a unique three-way faculty appointment at the USC, MUSC and Clemson University.

Dr. Morad is an internationally recognized scientist in the field of cardiac electrophysiology and calcium signaling. He has pioneered many seminal findings and technologies in the fields of electrophysiology and Cardiac signaling. He has had over 300 original publications, 20 of which have appeared in Science and Nature, and has trained over 90 graduate students and postdoctoral fellows, most of whom have leading academic positions in American, European, and Asian Universities. Dr. Morad’s career is marked by an incessant drive to formulate new physiological and molecular concepts based on innovative technology and experimental approaches unique to his lab. He has had a distinguished scientific career as professor of Physiology and Medicine at University of
Pennsylvania, Professor and Chair at Georgetown University, and now as an Endowed professor at the three leading universities of SC. He was awarded the German Government senior Scientist Alexander von Humboldt prize for his seminal work in cardiac electrophysiology. He was elected as a founding fellow of International Society for Heart Research (ISHR) and a fellow of International Academy of Cardiovascular Sciences.

Dr. Morad’s current research is focused primarily on the pathophysiology of heart failure and cardiac arrhythmias. Recently he has succeeded in developing beating heart cells from the skin biopsies of human volunteers that can be used to repair damaged hearts, using adult stem cell technology. Similar approach is now underway in his Center in Charleston to engineer biologically based pacemaker from patient’s skin fibroblasts to correct the irregularities of heart rhythm. To this end he and his team are using genetically engineered probes to examine the calcium signaling nano-domains of proteins involved in the pacemaking in adult hearts as well as in stem cell derived and spontaneously beating cardiomyocytes. The possible creation of a biological pacemaker derived from genetically engineered cells will provide major therapeutic advances in treatment of cardiac arrhythmias.

Gary Lopaschuk Honoured with Howard Morgan Award for Excellence in Cardiovascular Sciences

Dr. Gary D. Lopaschuk is a Distinguished University Professor of Pediatrics at the University of Alberta, Edmonton. He is a Cardiovascular Researcher whose research focuses on the regulation of fatty acid oxidation in the heart, and the mechanism by which high rates of fatty acid oxidation contribute to heart disease and heart failure. He is also examining how alterations in fatty acid metabolism contribute to cardiovascular disease in the diabetic. At a molecular level he has characterized a number of key enzymes important in the regulation of cardiac fatty acid oxidation. He is also developing a number of therapeutic strategies that involve optimizing energy metabolism in the heart that can be used to prevent the development of heart disease, and that can also be used to treat heart failure. His research has resulted in the publication of over 400 original research articles, and he has been recognized by awards such as the Canadian Cardiovascular Research Achievement Award and the International Academy of Cardiovascular Sciences Research Achievement Award.

Dr. Lopaschuk is an Alberta Innovates Health Solution Scientist, and is a Fellow of the Royal Society of Canada. He has served as Scientific Director of the Mazankowski Alberta Heart Institute, and has previously served in a number of capacities with the Heart Stroke Foundation of Canada, including as Chair of the Scientific Review Committee and the Vice-Chair of the Research Planning and Priorities Committee. He serves on a number of journal editorial boards, including Circulation Research, Journal of Clinical Investigation, American Journal of Physiology, Cardiovascular Research, Journal of Molecular and Cellular Cardiology, Canadian Journal of Physiology and Pharmacology, Heart and Metabolism, and Cardiovascular Drugs and Therapy. He is also the President and CEO of a biotechnology company (Metabolic Modulators Research Ltd.), that is developing novel drugs to treat heart disease that optimize energy metabolism in the heart.

Péter Ferdinandy Honoured with Bohuslav Ostadal Award for Excellence in Cardiovascular Sciences

Dr. Péter Ferdinandy is a Professor of Pharmacology and Clinical Pharmacology as well as Director of the Department of Pharmacology and Pharmacotherapy, Semmelweis University, Budapest, Hungary (www.semmelweis.hu/pharmacology) and the CEO of Pharma Hungary Group (www.pharmahungary.com). He received an MD diploma in 1991 and a PhD degree in 1995 from the University of Szeged, Hungary. He was a postdoctoral fellow of MRC Canada for 2 years (1997-1999) at the Department of Pharmacology, University of Alberta, Edmonton, Canada. He became a registered clinical pharmacologist in 1999, and obtained a DSc degree from the Hungarian Academy of Sciences in 2004. He completed MBA studies in Finance and Quality
Dr. Péter Ferdinandy

Management in 2004 at the Budapest University of Technology and Economics. He was the founder of Pharma Hungary Group, a group of R&D companies (www.pharmahungary.com) and consulted hundreds of industrial drug development projects in cardiovascular and metabolic diseases.

He has published over 200 papers and listed on highly cited 2014 and 2017 (www.highlycited.com - the most influential scientists) in the field of pharmacology and toxicology. He is member of the editorial boards of Br J Pharmacol, Basic Res Cardiol, J Mol Cell Cardiol, and J Pharmacol Toxicol Methods. He was the president of the International Society for Heart Research, European Section, and currently the past chair of the Working Group of Cellular Biology of the Heart, European Society of Cardiology.

Dobromir Dobrev Elected as Fellow of the Academy

Dr. Dobrev is a Full Professor and Director of Institute of Pharmacology, University Duisburg-Essen, Essen, Germany. He also serves as Adjunct Full Professor of Medicine at Montreal Heart Institute and University of Montreal (Montreal, Canada) and at Department of Molecular Physiology Biophysics, Baylor College of Medicine (Houston, USA).

He studied medicine in Budapest/Pécs (Hungary) and Dresden (Germany) and obtained his Doctorate of Medicine (M.D. degree) in 1994 at the Dresden University of Technology (Germany). He became board certified (“Facharzt”) in Pharmacology and Toxicology in 1998. Dr. Dobrev obtained his Facultas docendi and Venia legendi in Pharmacology and Toxicology in 2002 and rose to the rank of Professor of Medicine in 2008.

In 2010 he was appointed as a Full Professor of Experimental Cardiology and Chair of Division of Experimental Cardiology at the Medical Faculty Mannheim of the University of Heidelberg. Dr. Dobrev moved to Essen in October 2012, to take the position of Full Professor of Pharmacology and Toxicology and Director of Institute of Pharmacology, West German Heart and Vascular Center, University Duisburg-Essen, Essen, Germany.

His main research interest is the molecular basis of disease-related cardiac remodeling and arrhythmias with a main focus on atrial fibrillation and the identification and validation of novel targets for atrial fibrillation therapy. Dr. Dobrev was Grantee Coordinator of “European-North American Atrial Fibrillation Research Alliance” (Transatlantic Network of Excellence in Cardiovascular Diseases Program, Fondation Leducq, Paris, France; 2007-2013) and Work Package Leader in EU FP7 Large-scale Integrating Project “The European Network for Translational Research in Atrial Fibrillation” (2010-2015). He was also Co-coordinator (2011-2013) of Arrhythmia Research Program of the German (National) Centre for Cardiovascular Research (“Deutsches Zentrum für Herz-Kreislauf-Forschung”).

Dr. Dobrev is recognized nationally and internationally as an expert in cardiovascular research. He has authored over 217 peer-reviewed articles in medical journals including Circulation, Circulation Research, Journal of Clinical Investigation, Journal of American College of Cardiology, European Heart Journal, The Lancet, Nature Reviews Drug Discovery, and Nature Reviews in Cardiology and has received over 160 invitations to speak at congresses/seminars worldwide. He serves on Editorial Boards of major cardiovascular journals and is currently Editor-in-Chief of International Journal of Cardiology: Heart Vasculature. Dr. Dobrev has received numerous awards including a Research Award of the German Heart Foundation (2001), the Albert-Fraenkel-Award of the German Society of Cardiology (2005) and the Outstanding Achievement Award of the European Cardiac Arrhythmia Society (2012). From 2004-2007 he was vice chair and from 2007-2010 chair of Working Group on Cellular Electrophysiology of the German Cardiac Society. From 2014-2016, Dr. Dobrev was vice chair and from 2016 he is Chair of the Working Group on Cardiac Cellular Electrophysiology of the European
Society of Cardiology. He was reviewer of the 2016 ESC Guidelines on atrial fibrillation developed in collaboration with the European Association for Cardio-Thoracic Surgery (EACTS). From 2017 he is a Board Member of the European Heart Rhythm Association.

**Call for Nominations for IACS Officers and Council Members**

Nominations for highly qualified and committed individuals are requested for election to the office of President-Elect and several Council Members. It is pointed out that Dr. Roberto Bolli will be assuming the office of President and the term of 5 Council Members will be expiring effective July 1, 2018. All these nominations (one page letter indicating the expertise, achievements, address and email of nominee) will be reviewed by the Nomination Committee in terms of their commitments and regional representation. The selected candidate will be asked for their agreement to place their names on the slate for election. Please send nominations by February 15, 2018 to Dr. Naranjan Dhalla, Executive Director of IACS, Email: nsdhalla@sbrc.ca

**CV Network Editorial Board**

**EDITOR: Paramjit S. Tappia**

**EDITORIAL ASSISTANTS**

Eva Little (Canada)
Simaran Kaur (Canada)
Teri Moffatt (Canada)
Andrea Edel (Canada)
Disha Naik (Canada)

**EDITORIAL BOARD**

Adriana Adameova (Slovakia)
Eman Ashgar (KSA)
István Baczkó (Hungary)
Muthuswamy Balasubramanyam (India)
Judit Barta (Hungary)
Monika Bartekova (Slovakia)
Harpal Buttar (Canada)

Budhadeb Dawn (USA)
Larry Fliegel (Canada)
Elaine Maria Freitas (Brazil)
Sanjay Ganapathi (India)
Vladimir Jakovljevic (Serbia)
Chandrasekharan Kartha (India)
Madhu Khullar (India)
Naoki Makino (Japan)
Rizwan Manji (Canada)
Paras Mishra (USA)
Ursula Muller-Werdan (Germany)
Danina Muntean (Romania)
Petr Ostadal (Czech Republic)
Tanya Ravingerova (Slovakia)
Taylor Salinardi (USA)
Ram B. Singh (India)
Dinender Singla (USA)
Belma Turan (Turkey)
Shelley Zieroth (Canada)

**Official Partnering Journals of the International Academy of Cardiovascular Sciences**

Heart Failure Reviews

Cardiovascular Drugs
Report of the 2017 Activities of the International Academy of Cardiovascular Sciences by the Executive Director

By: Dr. Naranjan Dhalla, PhD, MD (Hon), DSc (Hon), Executive Director, IACS
St. Boniface Hospital Albrechtsen Research Centre
Email: nsdhalla@sbrc.ca

In view of the objectives of the Academy (IACS) to (i) promote CV education (ii) exchange of information for the prevention and treatment of heart disease (iii) training of young scientists and (iv) recognition of established investigators, the following events and activities were held during 2017:

1. The Academy bestowed several honours and awards to recognize the contribution of established investigators. The Medal of Merit was bestowed upon Dr. Arnold Schwartz from Cincinnati; four Life Time Achievements Awards were given to Drs. Karl Weber, Philip Kadowitz, Mark Entman and William Wieglicki; three Leadership Awards were given to Drs. Arunabha Ray, Dinender Singla and Ferenc Gallyas; and four Distinguished Service Awards were given to Drs. Kavita Gulati, William DeCampli, Sampath Parthasarathy and Ricardo Benfatti.

2. Thirteen Named Awards were given to several outstanding investigators. Makato Nagano Award to Dr. Andras Varro, Howard Morgan Award to Dr. Gary Lopaschuk, Norman Alpert Award to Dr. Michael Czubryt, Naranjan Dhalla Award to Gary Lopaschuk, Suresh Gupta Award to Dr. Pawan Singal, Ramesh Goyal Award to Dr. Om Prakash Yadava, Harpal Buttar Award to Dr. Vishwanathan Mohan, Rakesh Kukreja Award to Dr. Balram Bhargava, Bohuslav Ostadal Award to Dr. Peter Ferdinandy, Jan Slezk Award to Dr. Martin Morad, Andras Varro Award to Dr. Edward Carmeliet, Otoni Gomes Award to Dr. Bruno Buchholz and Ricardo Gelpi Award to Dr. Melchior Lima.

3. The Academy held four conferences at different places namely: (i) New Delhi, India in February under the chair of Dr. Arunabha Ray for the IACS-Indian Section; (ii) Orlando, USA in August under the chair of Dr. Dinender Singla for the IACS-North American Section; (iii) Pecs, Hungary in September under the chair of Dr. Ferenc Gallyas for the IACS-European Section; and (iv) Campo Grande in October under the chair of Dr. Ricardo Benfatti for the IACS-South American Section. Eight to twelve Symposium Sessions on different topics dealing with Cardiovascular Health and Disease were scheduled at each meeting. The Academy also sponsored a Heart Health Forum in Kragujevac, Serbia under the chairmanship of Prof. Vladimir Jakovljevic. These conferences provided excellent opportunities to interact with each other, exchange information and establish research collaborations.

4. Six Awards Competitions for 24 Young Investigators were held in honour of Dr. James Willerson, Dr. Roberto Bolli, Dr. Grant Pierce, Dr. Gary Lopaschuk, Dr. Suresh Tyagi and Dr. Devendra Agrawal at the IACS-North American and IACS-India Section Meetings. In addition, several Poster Awards to Young Investigators were given in the name of Dr. Morris Karmazyn, Dr. Margaret Moffat, Dr. Karl Werdan, Dr. Keld Kjeldsen and Dr. Naranjan Dhalla. Furthermore several travel grants were given to Young Investigators in honour of Dr. Chandrasekharan Kartha, Dr. Elizabeth Roth and St. Boniface Hospital Albrechtsen Research Centre.

5. The IACS-European Section presented the 2nd Naranjan Dhalla Distinguished Lecture Award to Dr. David Eisner from England. In addition the Academy elected twelve Fellows: two from Canada, one from Germany, one from Brazil, four from India and four from USA. The Fellows elected were: Drs. Madhu Dikshit, Dobromir Dobrev, Henrique Furtado, Martin Gerdes, Kavita Gulati, Danielle Jacques, Richard Kittis, V. Raman Kutty, David Lefer, CN. Manjunath, Bram Ramjawan, Junichi Sadoshima.

6. The Indian Section of the Academy celebrated World Heart Day in September in Trivandrum and Anand by having lectures on heart health for the high school children. Two public forums were organized by the Academy in Winnipeg in the form of Harold Buckwald Distinguished Lecture Lecture by Dr. V. Mohan and Yetta & Jack Levit Distinguished Award Lecture by Dr. J. L. Mehta.

It is hoped that you will find the activities of the Academy as outlined in this report consistent with the fulfillment of our mandate.

We thank St. Boniface Hospital Albrechtsen Research Centre, Canadian Science Publishing (NRC Research Press), Kieth Levit & family, and Drs. Sonny Dhalla, James Willerson, Roberto Bolli, Gary Lopaschuk & Morris Karmazyn for their continued support.
Since 1999 the Institute of Cardiovascular Sciences at the St. Boniface Hospital Albrechtsen Research Centre in Winnipeg has been holding an annual awards day to celebrate excellence in cardiovascular research, education and training. Dr. Naranjan Dhalla, the founder and director of the Institute of Cardiovascular Sciences established the cardiovascular awards day to recognize an individual’s leadership and achievements in promoting cardiovascular research, education as well as their lifetime contributions to the cardiovascular community. These awards also honor individuals at various stages of their careers from summer and graduate students to world leaders whose achievements significantly influenced cardiovascular education and medicine.

To achieve his vision Dr. Dhalla established an endowment fund that would support in perpetuity several distinguished lectureships named after individuals who had played a significant and important role in supporting the Institute of Cardiovascular Sciences over the years. These named awards in different categories include; the Dr. Robert E. Beamish Leadership Award for outstanding leadership in cardiovascular sciences and education; Ken Bowman Research Achievement Award for outstanding achievements in cardiovascular research; Dr. John Foerster Distinguished Lecture Award for lifetime contributions to cardiovascular medicine; Dr. Vincenzo Panagia Distinguished Lecturer Award for cutting edge research in cardiovascular sciences; Mr. Jack Litvak Exemplary Service Award for exemplary service to the Institute of Cardiovascular Sciences; Dr. Arnold Naimark Post-doctoral Award for excellence in cardiovascular research by a post-doctoral scientist; Dr. Henry Friesen Young Scientist Award for excellence in cardiovascular research by pre-doctoral trainee; Sr. Jacqueline St-Yves Publication Award for best paper published in cardiovascular research; Mr. Kalwant Dhalla Research Technician Award for high quality of dedicated technical services; Dr. Ted Cuddy and Dr. James McGoey awards for exemplary performance of summer students. Moreover, a partnership with the Heart and Stroke Foundation of Manitoba was established for the Best MSc Thesis Award. The two day event is marked by a gala dinner, scientific program, poster competition, followed by awards ceremony and reception. Over the past 19 years this premier event has been a tremendous success and honored many distinguished scientists including Nobel Prize Laureates; Dr. Louis Ignarro, Dr. Ferid Murad, and Dr. Peter Agre as well as other world class scientists including, Dr. Eric Olson, Dr. Victor Zau, Dr. Roberto Bolli, to name a few.
To honor Dr. Dhalla for his life-time commitment, leadership and forward thinking vision for establishing the Institute of Cardiovascular Sciences awards day almost 19 years ago, I very am excited to report that the prestigious award day was renamed the “Dr. Naranjan Dhalla Cardiovascular Awards Day” to appropriately reflect Dr. Dhalla’s long-standing contributions to the Institute of Cardiovascular Sciences Awards Program. On November 2nd 2017, the 19th Annual Institute of Cardiovascular Sciences, Dr. Naranjan Dhalla Awards Day was held and honored several world-class scientists including Gairdner-Whyte Award winner Dr. Antione Hakim (Ottawa Heart Institute); Dr. Peipei Ping, (University of California at Los Angeles); Dr. Steven Houser; (Temple University), Lynn Megeney, (University of Ottawa). We are very proud of the Dr. Naranjan Dhalla for the award day he created and which has become a marque program for the Institute of cardiovascular sciences, St. Boniface Hospital Albrechtsen Research Centre and the University of Manitoba.

Dr. John Foerster, St. Boniface Hospital Research Executive Director of Research (1986-2006) [Left] presents the John Foerster Distinguished Lecture Award to Dr. Steven Houser (Philadelphia, USA)

Dr. Pawan Singal, Principal Investigator, Cell Pathophysiology, Institute of Cardiovascular Sciences [left] presents the Vincenzo Panagia Distinguished Lecture Award to Dr. Lynn Megeney (Ottawa, Ontario)
The International Academy of Cardiovascular Sciences and the St. Boniface Hospital Research Centre have established a lecture series in the honor of Yetta & Jack Levit to promote cardiovascular health for the benefit of general public in the Province of Manitoba. This year Dr. Jawahar L. Mehta presented the 4th Annual Distinguished Lecture in Heart Health.

Prof. Mehta received his MD degree in India and PhD in Sweden, and completed his post-graduate education in New York and Minnesota. He joined the faculty of the college of medicine of the University of Florida where he rose to be University Research Foundation professor.

Prof. Mehta moved to Little Rock in 2000 as the first Stebbins Chair in Cardiology and Professor of Medicine and Physiology and Biophysics. He led the Division of Cardiovascular Medicine at the University of Arkansas for Medical Sciences and the affiliated Central Arkansas Veterans Affairs Medical Center. He is currently Distinguished Professor of Medicine at the UAMS. Prof Mehta is known for his work on platelet biology and thrombosis in myocardial ischemia in the late 1970s and early 1980s. This seminal work led to the trials of anti-platelet drugs in cardiac patients.

Prof. Mehta’s research on the biology of LOX-1, a receptor for oxidized low density lipoprotein, over the last 15 years has opened a new target for cardiovascular therapy. He has taken this work from the identification of the receptor in human coronary endothelial cells, macrophages, platelets, and cardiomyocytes; and its upregulation by mediators of atherosclerosis and tissue ischemia. With the use of LOX-1 deletion technology, he has demonstrated limitation of atherogenesis and myocardial ischemic injury. This work has inspired a host of collaborators in the University of Washington, Thomas Jefferson University, University of Texas (Houston), University of Rome, and the University of Osaka. Dr Mehta is a major collaborator in all these projects. He has taken this work to humans and shown that LOX-1 polymorphism is associated with a heightened risk of acute myocardial infarction in man. This work has led to development of small molecules targeting LOX-1 in his laboratory, and development of biologics by major pharmaceutical companies. Initial clinical trials with the biologics are currently underway.

Prof. Mehta serves or has served on the editorial boards of several major cardiology, physiology and pharmacology journals, including Circulation, Hypertension, American Journal of Cardiology, European Heart Journal, Journal of the American College of Cardiology, and the World Journal of Cardiology. He has published over 1200 papers, abstracts and book chapters.

He is a member of many prestigious academic societies, including the Association of American Physicians, American Society for Clinical Investigation and Association of University Cardiologists.

Grateful patients have established a Mehta Chair in Cardiovascular Research at UAMS in his honor. Recently, a Jay and Paulette Mehta Lectureship in Internal Medicine has also been established by grateful patients.

He has received major national and international awards. Recent major awards include, the Pericle d'Oro...
International Prize University, Magna Graecia of Catanzaro, Italy; and the UAMS Dean’s Distinguished Faculty Scholar Award in October 2015. He is listed in Marquis Who's Who in America, Who's Who in the World, Who's Who Medicine and Healthcare, and Leading Physicians of the World. As a testament to his clinical skills, Prof. Mehta was named last month among the top 26 cardiologists in the United States by Forbes magazine.

Prof. Mehta has lectured in over 30 countries. He has diverse interests besides medicine, such as painting, photography, world economy and international politics.

He is an honorary professor in the University of Rome, an adjunct Professor in the Clinton School of Public School in Little Rock, AR, and serves as consultant to the University of Arkansas in nanotechnology and biomedical engineering.

Many of his trainees occupy positions of prominence in many countries, including China, India, Italy and Japan. His biggest assets- his wife Paulette is a Professor of Hematology/Oncology at UAMS, his daughter Asha Mehta, a senior VP at Acadian Investments and his son Jason (Harvard JD) is a senior Assistant US attorney for the middle district of Florida.

Dr. Mehta with award plaque along with L to R: Dr. Ross Feldman, Keith Levit, (Dr. Mehta) Dr. Anold Naimark and members of Levit Family.

**Announcement for the 6th Annual Meeting of the IACS-North American Section, 2018**

It is a Pleasure to announce that the 6th Annual Meeting of the International Academy of Cardiovascular Sciences-North American Section will be held jointly with the Cuban Cardiology Society Meeting in Havana, Cuba during June 5-8, 2018. The Scientific Program will consist of several Named Symposia, Four Young Investigator Awards Competitions and Two Poster Award Competitions. Ten Travel Grants for Students and Postdoctoral Fellows will also be awarded. For further information, please write to:

Dr. Grant Pierce  
President, IACS-North American Section  
St. Boniface Hospital Albrechtsen Research Centre  
351 Tache Avenue, Winnipeg, Manitoba  
Email: GPierce@sbrc.ca
The 5th Annual Meeting of the Academy of Cardiovascular Sciences (North American Section) (IACS-2017) was organized and held at the Lake Nona Campus of the University of Central Florida College of Medicine on August 31st – September 2nd 2017. The meeting featured a diverse series of scholarly symposia that highlighted areas of current and prominent cardiovascular research in areas of disease pathogenesis, metabolism, remodeling, regeneration, pharmacology, and translational therapeutics. Cardiovascular disease continues to be a leading area of research interest due to the high incidence of morbidity and mortality worldwide, further supporting the need for new insight and critical discussion. The IACS 2017 North American Section 5th Annual Meeting did just that. It presented an opportunity for clinicians and scientists, both new and established, to collaborate and examine recent advances in the field.

The main theme of the conference was to promote Young Investigators and Centers of Excellence in Cardiovascular Sciences. National and International Scientists (basic and clinicians), professors, students, post-docs, research associates, and young investigators in the field of cardiovascular and metabolic sciences came together to exchange scientific ideas, generate collaborations, and discover new ways to advance scientific research for the betterment of society. Top experts attended from all across.

North America and internationally. The conference was attended by over one-hundred participants representing over a dozen states and eight countries. Diverse backgrounds facilitated a multidisciplinary discussion with sessions centered on topics such as myocardial infarction, ischemia, cardiotoxicity, stem cells, electrophysiology, pharmaceuticals, diabetes and atherosclerosis.
The opening ceremony was inaugurated by the conference co-chairs: Dr. Dinender Singla (UCF, Orlando, FL), Dr. Bill DeCampli (APH, Orlando, FL), and Dr. Sampath Parthasarathy (UCF, Orlando, FL). Dr. D. Singla initiated the opening ceremony with welcoming remarks in which he praised all participants for contributing such scholarly content in their presentations. Dr. D. Singla was joined on the dias by Dr. Griff Parks, on behalf of the UCF College of Medicine Dean, Dr. Deborah German. Dr. G. Parks welcomed the academy and spoke about it being an honor to host this year’s IACS conference. Dr. G. Pierce (Winnipeg), who serves as the President of the IACS-North American Section, wished the audience an enjoyable conference and thanked the UCF College of Medicine for providing such wonderful facilities and organization. He spoke to the importance of meetings such as these, which facilitate advancement of knowledge in interdisciplinary fields of cardiovascular science. Dr. B. DeCampli presented a few words on the program for young investigators, highlighting the numerous award presented with the Medal of Merit and then gave a lighthearted presentation on his journey through the development of the calcium channel drug, Diltiazem, which is used to this day as a keystone drug in hypertension.

The evening progressed with the chairs presenting the lifetime achievement award to Dr. William Weglicki (Washington, DC) and Dr. Mark Entman (Houston, TX), which was accepted by Dr. D. Singla on his behalf. Dr. Weglicki gave a few words and thanked the academy for such a prestigious award. Dr. D. Singla concluded the opening ceremony and welcomed delegates to retire to a reception of bountiful appetizers, drinks, and an atmosphere of scientific discussion amongst friends and colleagues.

The scientific program portion of the IACS conference began on Friday, September 1st and continued throughout the day on Saturday, September 2nd. It was held at the Courtyard and Residence Inn at Lake Nona. Each presentation was carefully selected by the IACS Executive Committee who specifically structured the symposia so that they each represent an area of intense research focus.

The symposia presenters included: Dr. Jawahar Mehta (Little Rock, AR), Dr. W. Decampli (Orlando, Florida), Dr. W. Weglicki (Washington, DC), Dr. B. Ostadal (Prague, Czech Republic), Dr. D. Lefer (New Orleans, LA), Dr. P. Singal (Winnipeg, Canada), Dr. R. Ramasamy (New York, NY), Dr. R. Kukreja (Richmond, VA), Dr. H. Sharma (Rotterdam, Netherlands), Dr. P. K. Mishra (Omaha, Nebraska), Dr. S. M. Tipparaju (Tampa, Florida), Dr. P. Nanasi (Szeged, Hungary), Dr. A. Varro (Szeged, Hungary), Dr. C. Mavroudis (Orlando, Florida), Dr. G. Bkaily (Sherbrook, Canada), Dr. G. Pierce (Winnipeg, Canada), Dr. B. Turan (Ankara, Turkey), Dr. N.S. Dhall (Winnipeg), Dr. G. Wang (Cincinnati, Ohio), Dr. A. Asakura (Minneapolis, Minnesota), Dr. J. Ma (Columbus, Ohio), Dr. K. Sugaya (Orlando, Florida), Dr. M. Czubryt (MB, Canada), Dr. S. Tyagi (Kentucky, USA) Dr. D. K. Singla (Florida, USA),
Dr. M. Gerdes (New York, USA), Dr. G. Lopaschuk (Edmonton, Canada), Dr. M. Periasamy (Orlando, FL USA), Dr. M. Masternak (Orlando, FL USA), Dr. S. Ebert (Orlando, FL USA), Dr. S. Parthasarathy (Orlando, FL USA), Dr. P. S. Tappia (Winnipeg, Canada), Dr. H. S. Buttar (Ottawa, Canada), Dr. S. Siddiqi (Orlando, FL USA), Dr. C. Yan (Rochester, NY USA), Dr. T. Gandhi (Anand, India), Dr. B. Tuana (Ottawa, Canada), Dr. J. Zhao (Orlando, FL USA), Dr. D. Jacques (Sherbrook, QC Canada), Dr. N. Maulik (Connecticut, USA), Dr. I. Baczkó (Szeged, Hungary), Dr. V. Davidson (Orlando, FL USA), Dr. K. Pournaghadam (Orlando, FL USA), Dr. S. Khatib (Irbid, Jordan), and Dr. J. Cheng (Orlando, FL USA).

The below sections detail the symposia presented during the Scientific Program for Friday, September 1st.

Bruce McManus Symposium: Pathophysiology of Heart Diseases

This scholastic start to this scientific session began with a symposium chaired by Dr. Nilanjana Maulik. She welcomed the audience and invited Dr. Jawahar Mehta (Little Rock, AR) to begin with a presentation that highlighted the connection between the cardiovascular system and the brain following myocardial ischemia. He discussed the significant neuronal injury that occurs and the mediators that play a role in promoting brain inflammation as a result. The second presenter of the session was Dr. William Decampli (Orlando, Florida), a pediatric cardiovascular surgeon and the co-director of The Heart Center at Arnold Palmer Hospital for Children. He presented a fascinating talk titled, “What can computational fluid dynamics tell us about disease”. He discussed the role of a unique phenomenon of fluid mechanics called the “injection jet” and its therapeutic role in decreasing pathological venous hypertension. This was followed with a talk by Dr. William Weglicki (Washington, DC) about “cardiovascular side effects due to EGFR-tyrosine kinase inhibitor drugs that are employed in cancer therapy”. Dr. W. Weglicki presented his findings on the effect of a novel EGFR-TK inhibiting drug in prevention of oxidative/inflammatory stress and cardiac dysfunction. The session continued with a discussion presented by Dr. Bohuslav Ostadal (Prague, Czech Republic) on “cardiotoxicity of mimetic catecholamines during development and possible clinical implications”. His presentation drew-attention to the harmful effects of catecholamines (CA) in the clinical setting in which he suggested have negative implications in the early phases of cardiac development.

Karl Weber Symposium: Pathogenesis and Therapy of Heart Failure

To continue, the first presentation on this session was presented by Dr. David Lefer (New Orleans, LA) initiated proceeding with a talk that highlighted the effect of radiofrequency renal nerve denervation on the pathobiology of heart failure, specifically emphasizing the metabolic activity of natriuretic peptide. Following, Dr. Pawan Singal (Winnipeg, Canada) spoke about the role of IL-10 stimulation through TLR4 signaling which initiates IRAK-4 dissociation into IRAK-1, a potentially new therapeutic approach for I/R injury. This session was concluded with a presentation by Dr. Xuan, on behalf of Dr. Muhammad Ashraf (Columbus, Ohio). He presented research on “regeneration of infarcted myocardium through using human iPS cells-derived cardiac progenitors”. Dr. Xuan discussed Dr. Ashraf's work on differentiating human iPSCs with the small molecule, ISX-9, in a single step. These differentiated cardiomyocytes, he suggested could contribute to future clinical applications in regenerative medicine.

Jawahar Mehta Symposium: Pharmacology and Therapy of Diabetic Heart

Next in line was a talk by Dr. Ravichandran Ramasamy (New York, NY) in which he presented about “receptor for advanced glycation end products (RAGE) which are the therapeutic target for protection of diabetic hearts”, RAGE has implications as a therapeutic target in diabetic hearts following IR injury. The next speaker, Dr. Rakesh Kukreja (Richmond, VA) presented a great talk on the “protection of the diabetic heart with PDE5 inhibition and hydroxychloroquine”. Dr. Hari Sharma (Rotterdam, Netherland) spoke about “molecular mechanism in pulmonary hypertension and identifying therapeutic targets”. Dr. Paras Kumar Mishra (Omaha, Nebraska) concluded this symposium with a lecture on “targeting tyrosine aminotransferase by MiR-133a induces neuronal tyrosine hydroxylase upregulation and improving contractility of diabetic heart”.

Stephen Vatner Symposium: Membrane Channels and Cardiac Abnormalities

In the next scientific symposium regarding membrane channels and cardiac abnormalities, Dr. Srinivas M. Tipparaju (Tampa, Florida) presented his findings on “physiological roles for Kvβ subunits in cardiovascular disease. He emphasized the role of Kvβ subunits in regulating electrical activity of the heart. The following speaker, Dr. Peter Nanasi (Szeged, Hungary) presented a nice lecture about “Ca2+-activated Cl-current in ventricular myocytes. The following presentation by Dr. Andras Varro (Szeged, Hungary) was on “possible mechanisms of sudden cardiac death in top athletes, a basic cardiac electrophysiological point of view”. He introduced several mechanisms such as repolarization abnormalities and physiological changes. This symposium was ended with a talk on “new concepts for atrioventricular pacing” presented by Dr. Constantine Mavroudis (Orlando, Florida). He introduced bio-
engineering based solutions to long term atrioventricular conduction.

**Competitions**

In addition to the series of conference symposia, a number of oral and poster competitions were conducted to highlight and encourage the exceptional work conducted among young faculty, graduate students, fellows and residents working within cardiovascular sciences.

- **Oral Competitions:**
  - James T. Willerson Competition for Postgraduate Fellows and Residents
  - Gary Lopaschuk Competition for Graduate Students
  - Roberto Bolli Competition for Young Faculty in Translational Science
  - Grant Pierce Competition for Young Faculty in Biomedical Sciences

- **Poster Competitions:**
  - Morris Karmazyn Poster Award Competition
  - Margaret Moffat Poster Competition
  - UCF Undergraduate Poster Competition
  - COM Fire Poster Competition

**Gala Dinner and Award Ceremony**

The day long symposia were concluded with an award ceremony and Gala dinner set at the beautiful Renaissance Orlando Hotel near the conference venue. Guests were welcomed to a reception complete with appetizers and refreshments. Dr. D. Singla (Master of Ceremony) acknowledged attending faculty, guests, and co-chairs, Dr. W. Decampli and Dr. S. Parthasarathy, to commence the evening’s events.

Dr. Singla began with presentation of the poster competition awards and travel grants. The 4 recipients of the Morris Karmazyn Award were: Zahra Tavakoli Dargani, Kaley Garner, Michael Rohr, and Richard Barrett.

The 4 recipients of the Margaret Moffat Award were: Aleksandra Stamenkovic, Krista Filomeno, Pragney Deme, and Tibor Hornyik.

Dr. Singla continued with awards presented for the UCF Undergraduate Poster Competition which was presented to Jessica Hellein and Reetish Singla.
The COM Fire Poster Competition award was presented to Naina Sharma.

In addition to the poster competition awards, several delegates were presented with Albrechtsen Research Centre Travel Grants. Recipients included: Aleksandra Stamenovic, Jialiang Liang, Krista Filomeno, Wanling Xuan, Tibor Hornyik, Alex Austria, and Vijayan Elimban.

Drs. Dhalla, Pierce and Varro were welcomed to the stage to acknowledge the following distinguished awardees for their significant contribution to the field of cardiovascular sciences. The Leadership Award was presented to Dr. Singla (Left upper Photo): Distinguished Service Award presented to Dr. W. Decampli (Right upper photo) and Dr. S. Parthasarathy (Lower photo).

Drs. Dhalla and Ostadal proceeded with a presentation of the Established Investigator Awards. Each awardee made a brief speech and expressed extreme gratitude toward IACS. Drs. Pierce, Parks, Klonoff and Singla joined together on the stage to express their appreciation and acknowledgment of all who contributed to organizing the conference as well as to thank the academy for their support and the honor of selecting the University of Central Florida as the host for the 5th Annual IACS meeting.

The Norman Alpert Award was presented to Dr. Micheal Czubryt (Winnipeg, MB Canada) (Left); the Naranjan Dhalla Award was presented to Dr. Gary Lopaschuk (Edmonton AB Canada) (Right)

The evening concluded with a bountiful Gala Dinner, socialization and comradesy.

The below sections detail the symposia presented the following day during the Scientific Program of Saturday, September 2nd.

**Dennis B. McNamara Symposium: Vascular Defects and Smooth Muscle Remodeling**

Vascular defects and smooth muscle remodeling is one of the major focuses of cardiovascular diseases. This session was chaired by Dr. Shadab Siddiqi (Orlando, FL), who welcomed the first speaker to present on this topic, Dr. Ghassan Bkaily (Sherbrook, Canada). His presentation described the role of Endothelin-1 in promoting ROS production in human vascular smooth muscle cells through heterodimerized endothelin-1 receptors. Dr. Grant Pierce (Winnipeg, Canada) continued with a presentation titled, “HSP60 involvement in vascular smooth muscle cell proliferation”. This was followed by Dr. Belma Turan (Ankara, Turkey), who discussed the application of a β3-AR agonist on cardiovascular dysfunction in the setting of Diabetes Mellitus and metabolic syndrome. Subsequently, Dr. Naranjan S. Dhalla (Winnipeg, Canada) concluded this session with a presentation titled, “The role and mechanisms of lysophosphatidic acid in vascular smooth muscle remodeling”.

**Eric Olson symposium: Cardiac Regeneration and Tissue Repair**

Cardiac regeneration and tissue repair was discussed throughout the conference; however, this symposium presented specific emphasis on the topic. Dr. Yi-gang Wang (Cincinnati, Ohio) started proceedings with a talk on “The role of miR-128 in cardiomyocyte proliferation and cardiac regeneration”. His talk, which centered on the mechanisms of specific miRNA in proliferation and homeostasis proposed a novel target in cardiac repair. This was followed by Dr. Atsushi Asakura (Minneapolis, Minnesota) who spoke on “generation of induced pluripotent stem cells-derived skeletal muscle via blastocyst complementation”. Following, Dr. Jianjie Ma (Columbus, Ohio) shared his research findings about “targeting MG53 function in tissue repair and regeneration”. In the final talk of this innovative session,
Dr. Kimi Sugaya (Orlando, Florida) discussed clinical applications of regenerative therapies with specific emphasis on the use of stem cells.

**Pawan Singal Symposium: Mechanisms of Cardiac Remodeling**

The next symposium focused on the mechanisms of cardiac remodeling. The first speaker, Dr. Michael Czubryt (MB, Canada), discussed how transcription factor scleraxis significantly regulates fibroblast levels. Dr. Suresh Tyagi (Kentucky, USA) followed and discussed doxycycline’s ability to reduce adverse remodeling following myocardial infarction. The next presentation was by Dr. Dinender K. Singla (Florida, USA), who presented on a new area of research interest which is the role of exosomes and their attenuation of cardiac remodeling. This was followed by a presentation by Dr. Martin Gerdes (New York, USA) who discussed his exploration of the molecular mechanisms responsible for myocyte geometry changes with focus on the role of thyroid hormone function in heart failure.

**Kern Wildenthal Symposium: Functional Implications of Cardiac Metabolism**

Dr. Gary Lopaschuk (Edmonton, Canada) kicked off this symposium with a novel talk on “post translational control of fatty acid oxidation in the newborn heart”. Next up was Dr. Muthu Periasamy (Orlando, FL USA) to explain how sarcolipin is able to regulate muscle energy metabolism. Following great discussion, Dr. Michal Masternak (Orlando, FL USA) took the spotlight to how visceral fat is directly linked to glucose metabolism in mice. Lastly, Dr. Steve Ebert (Orlando, FL USA) wrapped up this segment of the symposia with his work “metabolic meltdown following loss of adrenergic stimulation during embryonic heart development”.

**Meeting of the Executive Council of the IACS (North American Section)**

This meeting was held on the afternoon of Saturday, September 2nd. Dr. NS Dhall chaired the meeting and began with a welcoming introduction which was followed by discussion with the delegates on activities of the academy.

**Thematic Symposium 1: Nutritional Control of Cardiac Function**

The first of four thematic symposiums concentrated on nutrition and the cardiovascular system’s close regulative relationship. Dr. Sampath Parthasarathy (Orlando, FL USA) discussed “dietary peroxidized lipids Concerns beyond atherosclerosis”. Switching gears to diabetes, Dr. Paramjit S. Tappia (Winnipeg, Canada) explained how specific sulphur containing amino acids can prevent diabetes induced cardiac dysfunction. Dr. Harpal S. Buttar (Ottawa, Canada) followed with “clinically relevant interactions between cardiovascular drugs, herbs and fruit juices: mechanism of interactions and prescribing strategies”. Last on the list was Dr. Shadab Siddiqi (Orlando, FL USA) to enlighten guests on VLDL and its dependence on cideB and SVIP proteins for secretion.

**Thematic Symposium 2: Signal transduction and Cardiomyopathy**

The second thematic symposium highlighted work conducted within signal transduction and its relationship with cardiomyopathy. Dr. Chen Yan (Rochester, NY USA) was first up and delivered an excellent talk on cyclic nucleotide phosphodiesterase 1C influences cardiac remodeling. Dr. Tejal Gandhi (Anand, India) elaborated on her research on flavonoid compound, quercetin, and its beneficial impact against cardiomyopathy. Abundant discussion filled the room as attention switched onto Dr. Balwant Tuana (Ottawa, Canada). His research emphasized “Distinct mechanism of DCM revealed by deregulation of E2F activity”. To close this segment, Dr. Jackie Zhao (Orlando, FL USA) talked about his work on “A novel molecular cause of cardiomyopathy”.

**Thematic Symposium 3: Pathogenesis of Cardiovascular Disease**

Dr. Danielle Jacques (Sherbrook, QC Canada) kicked off the third thematic symposium which stressed pathogenesis of cardiovascular disease. Her work weighed in the important role of endothelial cells during cardiac disease. Next, Dr. Nilanjana Maulik (Connecticut, USA) broadened the scope of treatment options for heart attacks by taking into account the VEGF pathway. Dr. István Baczkó (Szeged, Hungary) finished the third thematic symposium with his findings on a more electrophysiological study on the antiarrhythmic effects of amiodarone and its metabolites.

**Thematic Symposium 4: Myocardial Protection and Preservation**

Dr. Victor Davidson (Orlando, FL USA) expounded upon his talk on how ascorbate alleviates oxidative damage. Following a great deal of discussion, an actively practicing medical doctor, Dr. K. Pournaghdam, (Orlando, FL USA) discussed his clinical based study on the use of del Nido cardioplegia protocol I pediatric hearts. Dr. Said Khatabi (Irbid, Jordan) presented his findings which showed phosphodiesterase 5 inhibitors are in fact able to reverse L-NAME induced cardiac hypertrophy. Dr. Jack Cheng (Orlando, FL USA) concluded this year’s IACS with his talk entitled “Chronic intermittent hypoxia: Functional and anatomical plasticity in the cardiac vagal axis”.

In Summary, the 5th Annual IACS: North American section was regarded as a success. It presented excellent opportunities for scientific collaboration,
multidisciplinary engagement, and discussion on a diverse series of topics within cardiovascular science. Young scientist had the opportunity to interact with established experts in the field and make new connections. The vast array of material presented during the symposia facilitated the dissemination of knowledge and evoked a spirit of collaboration and community necessary to advance the field forward.

Report on the 4th European Section Meeting of the IACS-European Section, Pecs, Hungary, September 28-30, 2017

Dr. Ferenc Gallyas Jr, PhD, DSc
Department of Biochemistry and Medical Chemistry
University of Pecs, Pecs, Hungary
Email: ferenc.gallyas@aok.pte.hu

To commemorate the 650th anniversary of Pecs University’s foundation, IACS-ES was organised parallel to the annual meetings of the Prevention and Rehabilitation Fraction of the Hungarian Cardiology Society, the Hungarian Stroke Society, the Hungarian Society for Angiology and Vascular Surgery, and the Hungarian Cardiovascular Rehabilitation Society. Consequently, this joint event provided a real translational medicine forum for the 458 participating researchers and clinicians. The Kodaly Center, one of the newest concert halls in Europe proved to be an excellent venue not only

Best Poster Award ceremony (from left): Mihaly Ruppert (awardee, Budapest, Hungary); Isidora Stojic (awardee, Kragujevac, Serbia); Tamás Arpadffy (awardee, Szeged, Hungary), Naranjan S. Dhalla; Andras Varro; Ferenc Gallyas Jr.

Presentation of the Howard Morgan Award for Distinguished Achievements in Cardiovascular Research (from left): Naranjan S. Dhalla; Bohuslav Ostadal; Gary Lopaschuk (awardee); Andras Varro

Presentation of the Elizabeth Roth Travel Grant (from left): Kitty Parker (awardee, Bristol, UK); Adit Jain (awardee, Noida, India); Nevena Jeremic (awardee, Louisville, USA), Naranjan S. Dhalla; Andras Varro; Ferenc Gallyas Jr.

Presentation of the Jan Slezak Award for Excellence in Cardiovascular Research (from left): Naranjan S. Dhalla; Bohuslav Ostadal; Martin Morad (awardee); Andras Varro

Presentation of the Howard Morgan Award for Distinguished Achievements in Cardiovascular Research (from left): Naranjan S. Dhalla; Bohuslav Ostadal; Gary Lopaschuk (awardee); Andras Varro

Presentation of the Elizabeth Roth Travel Grant (from left): Kitty Parker (awardee, Bristol, UK); Adit Jain (awardee, Noida, India); Nevena Jeremic (awardee, Louisville, USA), Naranjan S. Dhalla; Andras Varro; Ferenc Gallyas Jr.
for the parallel sessions and plenary lectures, but the opening concert featuring the Pannon Philharmonic Orchestra, and the Gala Dinner.

The scientific programme was very busy. Altogether, fifty-seven lectures were presented in thirteen sometimes parallel sessions, and a refereed poster session was provided for young participants to present their findings. Even, awardees of the three Karl Werdan Poster Awards in Translational Sciences and three Kjeld Kjeldsen Poster Awards in Biomedical Sciences were called for presenting their research orally in the Young Investigators’ Competition session. The 2nd Naranjan S. Dhalla Honorary lecture was given by David Eisner (Manchester, UK) about ups and downs of calcium in the heart. In keynote lectures, Gary Lopaschuk (Edmonton, Canada) introduced the contribution of branched chain amino acids to insulin resistance and contractile dysfunction of the failing heart; Karl Werdan (Halle, Germany) talked about microcirculation in critically ill cardiac patients; Naranjan S. Dhalla (Winnipeg, Canada) discussed the role of intracellular calcium in vascular smooth muscle cells to hypertension; and Edward Carmeliet (Leuven, Belgium) presented a short history of electrophysiology. The other lectures delivered by distinguished scientists from Canada (3), Czech Republic (1), Germany (3), Italy (2), Japan (1), Romania (2), Serbia (4), Slovak Republic (5), the United Kingdom (2), the United States (5) and Hungary (12) covered the major areas of cardiac physiology and pathophysiology including recent advances in experimental cardioprotection, gender variations in cardiac pathophysiology, mechanisms contributing to heart failure, arrhythmia, controversies in cardiac pacemaker function, co-morbidities leading to cardiac damage, effects of lifestyle and diet upon cardiac physiology, and translational research.

Prestigious awards were handed out to worthy recipients; professors David Eisner and Gary Lopaschuk have received the Naranjan S. Dhalla Award and the Howard Morgan Award, respectively, for distinguished achievements, while professors Martin Morad (Charleston, USA), Edward Carmeliet and Peter
Ferdinandy (Budapest, Hungary) have obtained the Jan Slezak Award, the Andras Varro Award and the Bohuslav Ostadal Award, respectively, for excellence in cardiovascular research. All awardees were presented with a plaque and cash awards of 2000 Euros (D.E.) or 700 Euros (G.L., M.M., E.C., P.F.). Winners of the Best Poster Awards have been presented with cash awards too of 250 Euros each, and six Elizabeth Roth Travel Grants (200 Euros each) have been given to young investigators who had come to the meeting from countries the furthest away. We should thank all cash awards to Prof. Naranjan S. Dhalla, Executive Director of IACS but for the Dhalla Award, which had been borne by IACS-ES. To conclude the list of awards, Ferenc Gallyas Jr. (Congress President) has received “Distinguished Leadership Award in Cardiovascular Sciences” also from IACS.

It would be a mistake not to mention some of the shortcomings of the meeting. One was the too tight programme that sometimes prevented appropriate discussion. Also, organizing parallel sessions did not prove to be a good decision; often interesting presentations collided. On the other hand, a real breakthrough was achieved in increasing participation. As congress president, I would like to thank the Organising Committee for their dedication and hard work, and the Hungarian Academy of Sciences, the University of Pecs Medical School and the Hungarian Society of Cardiology for their financial support. We hope all participants enjoyed science and social life during their stay in Pecs. Those who wish to see the photos taken during the symposium can visit the http://www.totofoto.hu/toto_app/galeria2.php website (PKK folders) or can apply to Rita.bognar@aok.pte.hu.

We are looking forward to welcoming you at the IACS-ES 2018 meeting in Bratislava, Slovakia.

Academy Sponsors Heart Health Forum in Kragujevac, Serbia

Dr. Vladimir Jakovljevic, MD, PhD
Faculty of Medical Sciences, University of Kragujevac, Kragujevac, Serbia
Email: drvladak@yahoocom

Some Participants in the meeting from the left are: Vladimir Zivkovic, Isidora Stojic, Nevena Jeremic, Jovana Jeremic, Suresh Tyagi, Devendra Agrawal, Vladimir Jakovljevic, Rakesh Kukreja, Tamara Nikolic, and Ivan Srejovic

On October the 2nd, 2017, in the framework of celebration for the 40th anniversary of the Faculty of Medical Sciences, University of Kragujevac, the Cardiovascular Research Laboratory organized a focused international forum entitled: “New insights in cardiovascular research”. This meeting was sponsored by International Academy of Cardiovascular Sciences. Prof. Naranjan Dhalla sent an official letter of support. Which was read as an introduction to the meeting. After the opening ceremony, three eminent investigators in the field of Cardiovascular Science from USA presented lectures on their research. Dr. Devendra Agrawal, from the Center for Clinical and Translational Science, Creighton University School of Medicine in Omaha, discussed his results dealing with novel approaches to plaque stabilization in carotid arteries. Dr. Suresh Tyagi from the University of Louisville, School of Medicine, in his talk, entitled: “Microbiota and Heart Disease”, revealed the past and present results about the connection between intestinal flora and cardiovascular diseases. Dr. Rakesh Kukreja, from the Pauley Heart Center, Virginia Commonwealth University in Richmond, presented his lecture dealing with possibilities of cardiac protection with phosphodiesterase 5 inhibitors in diabetes. All these investigators represent internationally recognized authorities in their spheres of interest and research. In the second part of this meeting, several members of Faculty of Medical Sciences presented the results on cardiovascular research. In addition, Prof. Vladimir Jakovljević, Dr. Nevena Jeremić, Mr. Pharm Jovana Jeremić, Dr. Vladimir Živković, Dr. Tamara Nikolić and Mr. pharm Isidora Stojić made presentations about recent research. Meeting was a great success. Support from IACS, University of Kragujevac and Faculty of Medical Sciences was very much appreciated.
The XXVII Scientific Forum - International Congress of Cardiovascular Sciences was held between 27 and 28 October, 2017 at the Deville Prime Hotel, Campo Grande - MS, Brazil. The conference brought together renowned national and international guests who have enriched the event with the teaching and important results of their research and experiences for cardiovascular sciences, culminating in improving care for our patients, as well as new research proposals emerging from their presentations. Marked by brilliance and dedication of the organizing committee, the success of the event was made possible by the outstanding support of the Health Portal, UNIMED, SERVAN, CDC, Cell, Heart Hospital, Intercath, Brazilian Society of Cardiology of the State of Mato Grosso of the South, CASSEMS, COMEX and Government of Mato Grosso of Sul State. The Opening Session, organized by Prof. Dr. Ricardo Adala Benfatti was chaired by Prof. Dr. Antoinette Oliveira Blackman and Prof. Dr. Ricardo Adala Benfatti with Prof. Dr. Antoinette Oliveira Blackman and Prof. Dr. Otoni Moreira Gomes.

After implementation of the National Anthem, Prof. Dr. Dhall, delivered lecture on "World landmarks of the International Academy of Cardiovascular Sciences," then Prof. Dr. Dhall, Founder and Executive Director of the International Academy of Cardiovascular Sciences, chaired the Awards Ceremony and presented the Gomes and Gelpi Awards for Excellence in Cardiovascular Sciences to Professors Melchior Luiz Lima and Bruno Buchholz.

Prof. Dr. Ricardo Adala Benfatti and Prof. Dr. Otoni Moreira Gomes, solemnly closed the opening session with the delivery to Prof. Dr. Henrique Furtado, the Certificate for Fellowship and Dr. Ricardo Benfatti, the Distinguished Service Award of the International Academy of Cardiovascular Sciences.

XXVII - International Congress of Cardiovascular Sciences was the Thanksgiving held in the parish of Santa Monica with the Priest Lucas Domingos da Silva and Priest Antônio Francisco da Silva and the Ecumenical Forum, structural component of the program of the event with the Blessing of Exmo. Rev. Metropolitan Archbishop of Belo Horizonte Dom Walmor Oliveira de Azevedo, marking and defining the major objective in the purposes of St. Isaiah. "Heal the wounded hearts - Isaiah 61: 1 "and of St. Paul" Together with all those who everywhere praise the Lord Jesus, their Lord and Our Lord - St. Paul, 1 Corinthians 2 " , the Ecumenical Forum started with reflection - prayer of the words of most Holy Mother Mary: "Said Mary, Mother of Jesus: Do what He tells you – Saint John 2: 6 " that was done with blessed devotion and fraternization.
During the two days of the Forum also participated actively students and recent graduates in various areas of knowledge; greatly enhancing and stimulating scientific research with also students lectures and work contributions in clinical and experimental areas. The meeting special focus on exchange of information in the different areas and discussions with renowned professionals in their specialities.

The XXVII 2017 Scientific Forum developed with great success by the renowned prestigious international audience, enriching the Congress with relevant international contributions with the notable presence of Prof. Dr. Bruno Buchholz – Argentina, Prof. Dr. Dinender K Singla – USA, Prof. Dr. Enrique Castañeda Saldaña – Peru, Prof. Dr. Martin Donato - Argentina, Prof. Dr. Marcelo Damonte - Argentina, Prof. Dr. Naranjan S. Dhallu – Canadá, Prof. Dr. Ricardo Jorge Gelpi – Argentina, Prof.Dr. Silvia C. Firpo – Argentina and Prof. Dr. Verónica D'Annunzio – Argentina.

The Scientific Forum already marks traditionally the world scientific calendar. It's proof is that thirty-four countries were already represented in what is now one of the largest international events in continuing education in the field of cardiovascular sciences. The Scientific Forum carries on its no apostrophe resume the partnership in organizing the World Congress of the IACS in Canada since 2003. The results of these events can be demonstrated by several published scientific journals and books, including works unpublished, with masters degrees theses, doctorate and postdoctoral also internationally recognized through this event. Renowned professionals, friends and companies in the sector are fundamental and indispensable for so many years of activity and possible contribution to the scientific development of this select and vital world of cardiovascular sciences. To Laboratories, medicine students, perfusionists, surgeons and health professionals, we give our gratitude testimony, in recognition of the important contributions that they are already moving in the third decade of work.

Snapshot of the some of the activities during the conference

Presentation of awards and photos of some conference attendees.
Promotion of Heart Health among Children (PRO♥C) Program

By: Dr. Surya Ramachandran, PhD
Academy of Cardiovascular Sciences (IACS-India Section)
Email: suryaramachandran@rgcb.res.in

“Epictetus, the famous Greek Philosopher once said, “It takes more than just a good looking body. You've got to have the heart and soul to go with it.” What he said in 93 AD still holds true as, we powder our faces, color our hair, wear the prettiest dresses and light up the world with a beaming smile even as our clogged heart struggles to pump blood to each part of our body. For ages we have overlooked the fact that we have just one heart which beats for a lifetime for us without ever resting. We have however glorified the heart in our romantic books, melodramatic movies and weepy television soap operas without aiding in improving its physiological function. Generations have therefore neglected their youth. We are here before you, dear children, to provide you information and help on how to keep your heart beating happily, so that we can build up a nation of young, powerful and healthy youth.”

This is the message which we aim to deliver to students of grades 8 and 9 as part of Promotion of Heart Health among Children (PRO♥C) program. A major mission of the India Section of IACS is to promote prevention of heart diseases by educating the masses. We understand that there are inadequate community level initiatives for increasing awareness about risk factors for cardiovascular diseases, which can enable preventive strategies early in life. The rate of heart disease in young Indians is almost twice as high compared to their western counterparts. There is therefore, an urgency to extend initiatives for cardiovascular health protection, such as increasing awareness for improved life style, nutritious and healthy food, promote health wellness programmes and promotion of meditation and Yoga to full effect to combat heart diseases. Making the younger generation (as young as school children) aware of various cardiovascular diseases, their risk factors and personal preventive strategies is a major focus of our activities.

This program was inaugurated at Saraswathy Vidyalaya, a leading public school in Trivandrum, with a talk by eminent cardiologist Padma Shri Professor G Vijayaraghavan in October 2016. In his inaugural address, Dr Vijayaraghavan stressed upon the need to include one hour of play time for all growing children and importance of nutritious food to overcome heart diseases during older age. Over the past one year, we have conducted lectures in several public and government schools such as Karthika Tirunnal Girls high school, SMV Boys high school and Kendriya Vidyalaya School.

This World Heart Day (WHD), the Academy of Cardiovascular Sciences in association with Rajiv Gandhi Centre for Biotechnology, Trivandrum organized a talk by renowned cardiologist Professor S Sivasankaran of Sree Chitra Tirunal Institute of Medical Sciences and Technology at SMV High School, Thampanoor. Dr Sivasankaran in his world heart day message stressed upon the importance of living a healthy life in the first 25 years of life to be heart healthy in the later 50 years of life. The meeting was inaugurated by the Headmaster of SMV School, Shri Jeeavaraj and presided by Thampanoor Ward Councillor Advocate Jayalekshmi, Academy President and Distinguished Professor of RGCB, Dr CC Kartha and Secretary General and Scientist, Cardiovascular Disease Biology, Dr Surya Ramachandran.
In the modern era, cardiovascular disease (CVD) remains to be the biggest killer of humans, often in middle age, not only in developed societies but also in developing and underdeveloped countries. CVD is the disease that causes more deaths than any others in the world, including cancer. In a number of European countries, more than 50% of all deaths are due to cardio- and cerebrovascular disease, while more women die due to heart disease than breast cancer (1). Most research priorities including both basic and clinical sciences on CVD focused to understand the underlying mechanisms of cardiovascular cell damage and how metabolic disorders such as diabetes lead to cardiovascular complications, understand the changes in the heart rhythm that leads to atrial fibrillation and sudden death as well as the molecular basis of heart failure, individual tailored treatment, gene and stem cell therapy, and understand the mechanisms of ageing in the cardiovascular system and the cardiovascular vulnerability of women (2). Of note, there is not a single approach to study CVD, due to the complexity of processes influenced by the interaction of several factors basically the metabolism of the myocardium and cellular mechanism of the heart.

One decade ago, it is announced that approximately 3.5 million people have cardiologic problems and the number increases by 100 thousand every year in Turkey (3). Annually, about 400 thousand myocardial infarctions (MI) occur and 50% of deaths occur due to myocardial infarctions. These deaths, at most, can occur due to lack of coordination and unconsciousness. This is a significant social impact. A look at current cardiac research in different countries, including Turkey, reveals an exciting and at the same time somewhat turbulent field. With the advent of non-invasive but complex surrogate measures, in addition to a wide variety of more or less specific biomarkers, it may become increasingly challenging to reach the heart of the matter. The vast number of data available may imply the risk of blurring a clear view on the fundamentals. Also, old concepts carry a tradition. The underlying mechanisms that cause heart failure are diverse and complex, although the final common physiological outcome is the same. However, the underlying mechanisms of heart failure are poorly understood. In the modern era, there is much more to learn than what we used to learn in the past. Shortly, it is an obvious fact that there is so much to learn and so little to acquire within a limited time during humans’ lifespan. Currently, Turkey has 80 million population with a median age of 30 years. The population is relatively younger compared with Western countries. Prof. Ahmet Ruchan Akar, President of Turkish Society of Cardiovascular Surgery, is giving numbers, that, today, a total of 1,460 cardiovascular specialists are working at 310 heart centres, homogenously distributed, in Turkey. There are 23 cardiologists per million population (PMP) and 18 cardiovascular surgeons PMP. Three hundred assistant doctors are still enrolled in their cardiovascular surgery residency programs. In Turkey alone, cardiovascular surgeons perform 80,000 open heart surgical cases per year. Turkish Society of Cardiovascular Surgery was established in 1988 to support and guide education in this field. Within one year after the first human heart transplantation on December 3, 1967 by Dr Christian Barnard in Capetown, South Africa two centers performed first heart transplants in Turkey from Ankara and Istanbul. Dr. Kemal Bayezit from Yüksek İhtisas Hospital performed Turkey's first heart transplant on November 22, 1968 and 5 days later Dr. Siyami Ersek performed the second heart transplant on November 27, 1968 in Istanbul Haydarpaşa Hospital. First long term survival however was achieved by Omer Bayezid and Cevat Yakut on Sept 7, 1989 in Istanbul Kosuyolu Hospital. First total artificial heart implantation (Symbion Jarvik-7) was performed by Hakki Akalin in Ibn Sina Hospital of Ankara University School of Medicine on Feb 27, 1988. Heart transplantation process is controlled by Turkey's Ministry of Health (TMH) since 1998. TMH also organizes organ sharing and organ transplant since 2001. Today number of heart transplant procedures approached 1,014 in Turkey but still one PMP.

Turkish Society of Cardiology (TSC) is the scientific, nonprofit, nongovernmental organization of Turkish cardiologists, established on May 21st, 1963, which is the most active medical professional society in the country and accredited by the government as “an institution working for public benefit” since 1980. TSC is member of ESC and WHF since 1964. As the follow-up of the National Policy for Cardiovascular Health prepared under the leadership of TSC, and the Strategic Plan on Prevention and Control of Cardiovascular Diseases based
on the Policy and introduced by the Ministry of Health at the end of 2007.

A look at current basic cardiac research in Turkey reveals an exciting future expectations although the difficulties to get financial support from external sources in the Universities and our research funding remains less than in the United States, most of European countries or Japan. In clinical aspect, with the advent of non-invasive but complex surrogate measures, in addition to a wide variety of more or less specific biomarkers, it may become increasingly challenging to reach the heart of the matter. Clinical research has been a driving force to improve our understanding of the pathophysiology of disease and to refine therapy. Finding a new balance between basic research and clinical research certainly requires a thorough overview in this field. Besides, real progress may also be derived from careful interpretation and critical reinterpretation. We have two important National Societies, which are members of the International Societies, as well. They are organizing some of the themes that have characterized the research process in the past and that have propelled the field to its present state (3).

Recently, TSC performed a detailed “Turkish assessment of SURF (Survey of Risk Factor Management) study and announced the control rates of cardiovascular risk factors derived from databases of 15 different levels of health centers in Turkey (4). They aimed to evaluate the levels of adherence to recommendations for secondary prevention and the achievement of treatment targets for the control of risk factors in patients with coronary heart disease (CHD). Among about 700 patients, the male number was about 70%. Their data demonstrated that, among Turkish CHD patients, the control rate of cardiovascular risk factors is low, and implementation of the recommendations regarding lifestyle modification and medication use for secondary prevention in the current guidelines are insufficient. Recently, Onat A et al. (5) with their study on overall mortality trend in the Turkish Adult Risk Factor (TARF) stratified by gender and place of residence have shown that female and urban participants demonstrate an adverse trend in overall mortality in Turkey. Their survey in 2016 demonstrated that gain in survival of Turkish women has distinctly stagnated compared with men, and hazard of death has risen significantly for women and urban residents in the past decade, suggesting interaction between female sex and urban residence.

Recently, it has been mentioned that due to the comparison to prevalence ages, the prevalence of cardiovascular diseases (CVD) for women in Turkey is about 10 years late compared to the men, at most, depending on high risk via menopause period. Generally, among women in Turkey, smoking, sedentary life style, and high blood pressure are common and high compared to other countries while women in Turkey get overweight, even obese, following menopause period (6). These properties reached to highest levels at ages about 60. Even if CVD is accepted as a male disease in our population, heart attack is number one among other disease for women. For example, the percentage of death following heart attack is 36% for men and 47% for women. We have similar rates for heart failure in Turkish population, as well (6). Due to cardiologists, the diagnostic tests are applied generally to men more than women, due to several reasons, including less physical activity, more stressful life style and lower appearance of symptom in women.

In the content of literature published last 15 years related with CVD and gender differences in Turkey, the above general information were supported, in general. Erdogan and coworkers (7) have investigated the relationship of coronary artery calcification identified by electron beam tomography with age and gender between about 700 patients in Turkey. Their data demonstrated significant differences in mean total calcification scores between men and women while men always had more coronary artery calcification than women at all age groups. However, the difference in prevalence of coronary artery calcification for men and women was starting to be decreased after age 60. In a later study, it was investigated gender-specific differences existing on the way from (abdominal) obesity to type 2 diabetes mellitus and CVD. The study among 2000 patients, men and women, representative of Turkish adults (mean age, 48 years), prospectively evaluated at a mean 4.1 years of follow-up, has shown that women with normal blood glucose level were prone to diabetes and exposed to CVD risk primarily by way of diabetes than men (8). In another study performed in the East Anatolian region of Turkey in 302 unrelated subjects who were referred for coronary angiography, Gundogdu and coworkers (9) investigated the association between the frequency of the -514C→T polymorphism of hepatic lipase and coronary artery disease (CAD) and that polymorphism of the hepatic lipase gene could act as a risk factor in the development of CAD in that region as well as male gender, diabetes mellitus, hypertension, and a positive family history of CAD. Furthermore, Aygul and coworkers (10) aimed to evaluate the prevalence of risk factors for ST-elevation myocardial infarction (STEMI), which had the highest in-hospital mortality rate within subtypes of acute coronary syndromes in Central Anatolia, one of the regions with high risk for coronary heart disease (CHD). This cross-sectional observational study included 1210 patients (962 men, 248 women) with the diagnosis of STEMI in 3 tertiary-medical centers in 3 cities in Central-Anatolia demonstrated although the percentage of female patients increased in relation to increasing age, 80% of the total patients were male.
Moreover they presented that while prevalence of smoking and family history was observed to decrease with aging, there was a statistically significant increase in prevalence of HT and DM while their prevalence were significantly higher in women than in men. The same research group, in a further study, compared the traditional risk factors, angiographic findings, and in-hospital mortality between smoking and nonsmoking Turkish men and women with acute myocardial infarction, AMI (11). They used 1500 patients to evaluate the differences between smokers and nonsmokers according to their sex in patients with AMI and demonstrated smoking, by decreasing the age of first AMI in women, offsets the age difference in first AMI between men and women. The mean age of first AMI is lower in Turkey than most European countries due to a high percentage of smoking. It was also evaluated in-hospital and long-term clinical results of female patients following primary angioplasty for STEMI, in comparison with male patients (totally 2,644 patients; 2,188 males, 456 females, who underwent primary angioplasty for STEMI) in Istanbul region (12). Interestingly, it is documented why the female patients should be treated more aggressively, due to the data on a higher risk profile and poorer in-hospital and follow-up clinical results by female patients.

In a very wide recent review, van Vliet M and co-authors (13) provided very valuable information on the available evidence regarding cardiometabolic risk factors in overweight pediatric populations. They compared the data from Dutch-Turkish children and children from Turkey, Hungary, Greece, Germany and Poland where they were in the tertile with the most unfavorable risk factor profile overall. In contrast, cohorts from Norway, Japan, Belgium, France and the Dominican Republic were in the tertile with most favorable risk profile. They proposed that the included data should be taken with caution, given the heterogeneity of the relatively small, mostly clinical cohorts and the lack of information concerning the influence of the values of risk parameters on true cardiometabolic outcome measures in comparable cohorts. Onat and coworkers (14) studied, in total, 1948 participants of the Turkish adult risk factor examination with available creatinine determinations at a mean 3.4 years’ follow-up in Turkey, taken into consideration the association between the highest levels of glomerular filtration rate and increased coronary heart disease (CHD) risk. Their data demonstrated that increasing serum creatinine values are associated strongly and independently with CHD risk in men but not in women, in whom the risk curve is U-shaped. From a global perspective, the universality of gender-related societal issues is particularly significant. A woman-based approach as well as gender-sensitive methods should be designed in relation to strategies on prevention/treatment of CVD.

Cardiovascular research has an excellent track record of leading to a better understanding of the normal functioning and the pathophysiology of the cardiovascular system and of translating that knowledge into new treatments. Investment in cardiovascular research brings results. It means, we need urgently high-technology equipped new research laboratories and institutes, which has to focus on basic and clinical applicable research. Additionally, we need local productions to support the research in this field.

References
In mid-1850s the giants of surgery like Theodur Billroth was against manipulating the heart. In 1883, Billroth commented that “the surgeon who should attempt to suture a wound of the heart would lose the respect of his colleagues. Stephen Paget was in agreement with Billroth and dictated that “Surgery of the heart has probably reached the limits set by Nature to all surgery: no new method, and no new discovery, can overcome the natural difficulties that attend a wound of the heart”. However, in 1896 Ludwig Rehn repaired a stab wound to the right heart by direct suture also known as the first successful cardiorrhaphy in history. Separation of surgery into subspecialties in history was inevitable starting with ophthalmology and gynecology in 1850s, neurosurgery, urology, and ear nose throat in 1900s, and cardiovascular and thoracic surgery after 1950s.

Since the early days of cardiovascular surgery in mid-1950s where John Gibbon designed an extracorporeal circuit for oxygenation and circulation and C. Walton Lillehei performed cross-circulation techniques for cardiovascular surgery (CVS) had many milestones in its development. In fact, Drs. C. Walton Lillehei and F. John Lewis performed the first successful intracardiac correction of a congenital heart defect using hypothermia at the University of Minnesota on September 2, 1952. During the past 70 years CVS had extraordinary contribution to medical history. In the beginning 2000s, minimally invasive and robotic techniques were introduced in cardiac surgery following surgical colleagues from orthopaedics, gastrointestinal surgery, and urological surgery.

Currently, Turkey has 80 million population with a median age of 30.4 years. The population is relatively younger compared with Western countries. Every citizen of independent Republic of Turkey thanks Mustafa Kemal Atatürk (1881-1938) for his reforms, leading to a secular and democratic country. His modernization project can be best observed in medicine. One of the milestones in Turkish medical history was Mustafa Kemal Atatürk’s invitation of European Jewish doctors who were forced to leave Germany to Turkey as refuge in 1933. In fact, Albert Einstein wrote a letter to Atatürk, asking for further Jewish scientists and physicians to be allowed to continue their research and practice in Turkey. This medical migration including 190 scientists from various disciplines including pioneers such as Rudolf Nissen, Albert Eckstein, and Edward Melchior who initiated Westernized modern Turkish higher education and also opened a new page in medicine in Turkey as a result of Kemalist belief in science.

Today, a total of 1,460 cardiovascular specialists are working at 274 heart centers (48 Ministry of Health, 59 university, 167 private hospitals) homogenously distributed in Turkey. There are 23 cardiologists per million population (PMP) and 18 CV surgeons PMP.
Three hundred cardiovascular surgery residents are still enrolled in their CVS residency programs. In Turkey alone, CV surgeons perform 80,000 open heart surgical cases per year. Turkish Society of Cardiovascular Surgery was established in 1988 to support and guide education, research, and innovations in our field by Prof. Aydın Aytac, Prof. Cemil Barlas and 12 leading CV surgeons. Training in CVS is a separate specialization in Turkey unlike UK and some European countries. In these countries, cardiac surgery and thoracic surgery are separate specializations.

Mehmet Emin Tekdoğan was the first who performed mitral valve surgery using extracorporeal circulation at the Hacettepe University, Ankara. In 1962, Aydın Aytac performed series of cardiac surgical procedures including congenital cardiac surgery. Replacement of double and triple heart valves was performed by Siyami Ersek and Kemal Beyazit in the following years. Within one year after the first human heart transplantation on December 3, 1967 by Dr. Christian Barnard in Capetown, South Africa two centers performed first heart transplants in Turkey from Ankara and Istanbul. Dr. Kemal Bayezit from Yüksek İhtisas Hospital performed the Turkey’s first heart transplant on November 22, 1968 and 5 days later Dr. Siyami Ersek performed the second heart transplant on November 27, 1968 in Istanbul Haydarpaşa Hospital. First long term survival however was achieved by Ömer Bayezid and Cevat Yakut on Sept 7, 1989 at the Istanbul Kosuyolu Hospital. First total artificial heart implantation (Symbion Jarvik-7) was performed by Hakki Akalin in Ibnı Sina Hospital of Ankara University School of Medicine on Feb 27, 1988. Currently, heart transplantation process is controlled by Turkey’s Ministry of Health (TMH) since 1998 and performed by 15 licensed advanced heart failure centers. TMH also organizes organ sharing and organ transport since 2001. Today number of heart transplant procedures approached 1,014 in Turkey but still one PMP.

Currently, however, Turkey is facing a major paradox for the future of our specialty. Young doctors refrain from being cardiovascular surgeons. Care of patients with high mortality risk, low income, unjust performance system, busy shifts, and fear of malpractice, are the current limitations of growth of CVS in Turkey. A new series of reforms are highly expected by our society.

CARRS Blare - ‘Step on the Gas”

By: Dr. Sanjay Ganapathi¹, MD, DM, Dr. Chandrasekharan Kartha², MD, PhD
¹Sree Chitra Tirunal Institute for Medical Sciences & Technology, Trivandrum 695011, Kerala, India
²Molecular Medicine & Disease Biology, Rajiv Gandhi Center for Biotechnology Trivandrum, India
Email: drsanjayganesh@gmail.com; ckartha@gmail.com

Till recently, most of the non-communicable diseases (NCD) data from India were obtained from cross-sectional studies which provided data on prevalence of diseases and risk factors. Such studies are based on criteria and definitions derived to a great extent from the cohort and case-control studies conducted in the western hemisphere. Researchers from the subcontinent and Asia-Pacific region often wonder if these can be applied en totem to their zones. Moreover, the community – based cross-sectional studies and hospital-based cohort studies conducted in south Asia have pointed to manifestation of coronary heart disease and its risk factors at younger ages when compared to the west. Questions remain to be answered - is this an apparent phenomenon due to the evolving structure of the population pyramid? If not, what are the reasons for this effect? What are the solutions?

South Asia, with its epidemiological transition, is witnessing a change in the nature of epidemiological studies too in its attempts to find the answers. Efforts are on to establish cohorts and follow them up prospectively. These help to assess the incidences of diseases and risk factors, identify the etiological factors and thereby provide answers to the issues identified during cross-sectional surveys. Moreover, they also form a means of surveillance, which is an important measure in the control of NCD. The CARRS [Centre for A rdio metabolic Risk Reduction in South-Asia]-Surveillance Study is one of the few such studies in the region. In the words of its investigators, “the CARRS-Surveillance study builds on the WHO STEPS (World Health Organisation stepwise Approach to Surveillance) model to capture prevalence of risk factors, CMDs, and their socioeconomic impact in serial representative surveys to understand trends, but goes a step further to convert the cross-sectional survey into a large, urban, sub-continent wide prospective cohort at lower-costs, to understand the incidence of risk factors, diseases, complications, and mortality.”(1) This is a hybrid study, incorporating two cross-sectional surveys of adult participants (aged 20 and higher) three years apart in
three large cities in South Asia (Chennai, Delhi in India; Karachi in Pakistan) along with follow up of the participants enrolled during the first survey to estimate the following:

(i) the incidence of new risk factors (such as obesity, hypertension, diabetes,);
(ii) incidence of later-stage target organ diseases such as peripheral vascular disease, stroke, myocardial infarction, congestive heart failure, chronic stable angina, CKD, retinopathy, neuropathy, and amputation
(iii) health service utilisation and costs including hospitalisation and outpatient use
(iv) morbidity and mortality associated with cardio-metabolic diseases.

The investigators have published the data pertaining to hypertension, (2) which is available online in Indian Heart Journal from 30 May 2017. The authors report two-year follow up data of 79% of the 16,287 participants recruited during the first survey. Among the adults (aged 20 and above), just less than a third of the men (30%) and over a fourth of the women (27%) were hypertensive during the first survey, comparable to the figures from the United States (34% in men, 33% in women)(3). More alarmingly, a sixth of the normotensive participants developed hypertension over the two-year period, which represents one of the highest incidences reported world-wide. Unless appropriate measures are instituted, this could translate into more than doubling of the prevalence of hypertension in this population within a decade. The factors which were associated with increased risk of developing hypertension in the participants included older age, poor socio-economic status, overweight status, dysglycemia, pre-hypertension (by JNC-7 Criteria) and continued alcohol use.

More disheartening figures are portrayed for parameters assessing knowledge, attitude and practice. Fewer than half of the subjects were aware about hypertension and its perils. Only one in 10 men and one in 5 women had their blood pressure levels brought down within acceptable limits. Among patients with high risk of events (kidney disease, cardiovascular diseases, stroke) fewer than half had their hypertension under control.

With such alarming data on a major NCD component emanating from three metropolises in South Asia, the burden it is likely to pose on the families, communities and economies of the region will be of mammoth proportions in the coming decades, unless there is a concerted, all-out effort or as the accompanying editorial puts it, “all hands on deck” approach towards the problem.

References
Molecular Insights of Endurance and High Intensity Interval Training on Cardiovascular System

By: Dr. Nevena Jeremic, PhD
Department of Physiology, University of Louisville, KY, USA
Email: nevena.jeremic@louisville.edu

One of the factors that leads to a higher risk of heart failure is physical inactivity. It is well established that exercise training is not only beneficial for the cardiovascular system, but also contributes to the health of the entire body (1). Among the different types of training, aerobic activities appear to be favorable for many metabolic and cardiovascular disorders. Endurance training (ET) is mostly performed at submaximal intensity, with the main goal of progressively moving the anaerobic threshold through increased respiration and heart rate for a sustained and extended period. This occurs through complex modifications in muscle metabolism, increased mitochondrial density and oxidative enzymes, shifts in fiber type, and increased capillarisation of muscle fibers (2).

Despite the well-documented benefits of physical activity, exercise adherence remains a major issue for people attempting to use endurance training as a preventive medicine. One of the most commonly reported issues with exercise adherence in potential practitioners is time, as ET requires specific and potentially lengthy time commitments to be beneficial. This has led researchers to begin studying different approaches to exercise with possibly the same positive effects on the cardiovascular system as ET.

High intensity interval training (HIIT) presents shorter periods of high intensity (sub- to near maximal) exercise followed by longer periods of low intensity exercise or rest (3). Positive effects of this style of exercise include reductions in body fat (4, 5), reductions in blood glucose levels, and improvements in beta-oxidation and peroxisome proliferator-activated receptor (PPAR)-alpha (PGC-1α) (5). Thus, research shows the validity of HIIT inducing positive cardioprotective changes; however, while ET and HIIT both exhibit cardioprotective effects, the underlying molecular mechanisms remain unclear.

In terms of cardiovascular benefits, research has shown HIIT increases maximal oxygen uptake in patients with heart failure by 46% and left ventricle ejection fraction by 35%. Moreover, stroke volume (SV) and VO2 max were both increased after HIIT in healthy subjects compared with long, slow distance exercise (6). Preliminary data from our laboratory showed HIIT group had increased values of fractional shortening (FS) and increased values of ejection fraction (EF) compared to ET group in a mouse model. At the cellular level, the ability of the heart to perform haemodynamic work is defined by the force generated during contraction and the velocity of myocardial shortening during the ejection phase of the cardiac cycle. At the myofilament level, contraction of cardiac muscle is the result of cyclic interactions of myosin and actin molecules and the hydrolysis of ATP (7) and it has been shown that even small changes in myosin heavy chain expression can effect myocardium contractile function (8, 9).

It has been previously shown, particularly in skeletal muscle, exercise activates signaling pathways associated with mitochondrial biogenesis, such as the phosphorylation of AMPK and p38 MAPK, and the increased expression of PGC-1α mRNA. Endurance exercise is known to induce metabolic adaptations in skeletal muscle via activation of the transcriptional co-activator PGC-1α (10). Our preliminary data shows that this is not happening just in skeletal muscle, but also in heart tissue of both ET and HIIT exercised mice with greater changes observed in HIIT compared to ET mice.

One interesting molecule that has not been rigorously investigated in the exercise field is osteocrin (musclin). This protein was identified as a novel myokine in skeletal muscle, with roles in exercise response and possible endocrine system functions. While this protein is primarily expressed in skeletal muscle, a recent study has identified expression of this protein in the zebrafish heart (11). Subbotina et al. showed a possible explanation for the correlation between exercise, musclin and PGC-1α. Their results suggest that musclin signaling might be tied to oxidative phosphorylation through changes in mitochondrial density, size, or function and they support the importance of natriuretic peptide (NP) signaling and its regulation by musclin in cGMP/PGC1α–driven mitochondrial biogenesis (12).

While all of the above-mentioned molecules play important roles in the mechanisms of exercise-induced...
cardio-health, the question of how are these molecules being regulated remains relatively unanswered.

Using in silico target prediction analysis, we identified potential miRNAs involved in molecular mechanisms of all previously mentioned molecules. One of these was miR-320a, which has been shown to inhibit human-derived endothelium cell proliferation and induces apoptosis (13). Our in silico analysis showed that miR-320a predicted target musclin and PGC-1α. Hypoxia upregulates expression of miR-322 in lungs and pulmonary arterial smooth muscle cells (PASMCs) (14) and based on our in silico analysis work, miR-322 may also target PGC-1α. miR-302a has been shown to be a novel modulator of cholesterol efflux and a potential therapeutic target for suppressing atherosclerosis (15) and according to in silico analysis potentially targets superoxide dismutase 2 (SOD-2), an important mitochondrial free radical scavenger. While a few pathogenic roles for miR-320a, miR-302a and miR-322 have been identified, the role and function of these microRNAs in exercise has yet to be evaluated.

While both styles, ET and HIIT, create beneficial and cardioprotective adaptations, the mechanisms through which this occurs appears to be fairly distinct and specific. The main goal in our future work will be to observe molecular changes, contractile force, mitochondrial function, antioxidant status, and endocrine response of cardiac muscle tissue. In addition, we aim to establish if differential expression of miRNAs suggests different mechanisms of regulation between two different styles of exercise and as well as be utilized as novel biomarkers. Taken together, our main objective is to combat the excuse of “time” causing poor exercise adherence, and show HIIT may be a useful alternative to the more time consuming ET so as to increase and protect cardiac function.

References:
10th International Conference of
Academy of Cardiovascular Sciences
(International Academy of Cardiovascular Sciences-India Section)
RECENT ADVANCES IN CARDIOVASCULAR SCIENCES
February 08-10, 2018
Madurai Kamaraj University, Madurai, Tamilnadu, India

Executive Director
Prof. N.S. Dhalla,
Winnipeg, Canada

Dr. TF Ashavaid, Mumbai
Dr. Arubabha Ray, New Delhi
Dr. Sukumar Pirthivii, Guwahati
Dr. SR. Kalpana, Bangalore
Dr. Madhu Khullar, Chandigarh
Dr. Bijl Soman, Trivandrum
Dr. Tejal Gandhi, Anand
Dr. Sankar Natesan, Madurai
Dr. Manoj Barthwal, Lucknow
Dr. PC Negi, Shimla
Dr. Sajal Chakraborti, Kalyani
Dr. BP Reddy, Hyderabad
Dr. Trupti Rekha Swain, Cuttack
Dr. Sandhya Sitawab, Pune

Chief Patrons
Prof. P.P. Chelladurai, Vice-Chancellor,
Madurai Kamaraj University, Madurai
Dean, Madurai Medical College, Madurai
Prof. N.S. Dhalla, Winnipeg, Canada
Prof. C.C. Kartha, President, IACS-India
Prof. S.K. Gupta, Past President, IACS-India

Organizing Secretaries
Sankar Natesan, PhD,
Dr. A. Rathinavel, MS, MCh, PhD

Members
Dr. H. Shakila, Dr. D. Ganesh, Dr. SB. Anand
Dr. B. Ashok Kumar, Dr. P. Varalakshmi,
Dr. M. Pandi, Dr. N. Sivakumar, Dr. P. Gopal
Dr. A. Jayachitra, Dr. ND. Kannan, Dr. G. Sridevi,
School of Biotechnology, MKU

Contacts
Sankar Natesan, PhD
Department of Genetic Engineering,
School of Biotechnology
Madurai Kamaraj University
Madurai-625021
Tel: 91-452-2459441 / 91-9445627795
Email: iacsmku@gmail.com

Dr. A. Rathinavel, MS, MCh, PhD
Dept. of CardioThoracic Surgery
Madurai Medical College & Rajaji Govt.
Hospital, Madurai-625020
Tel: 91-9443367779
Email: arathinavel1965@gmail.com

Visit: cardiovascularsciences.org, register for membership to avail the benefits
Invited Speakers

Prof. N. S. Dhalia, Winnipeg, Canada
Dr. Jack Rubinstein, Cincinnati, USA
Dr. Saktivel Sadayappan, Cincinnati, USA
Dr. Jennifer Strande, Wisconsin, USA
Dr. Hussein Ardehali, Chicago, USA
Dr. Nilanjana Maulik, Connecticut, USA
Dr. P.K. Mishra, Nebraska, USA
Dr. Asher Kimchi, California, USA
Dr. Madhu Srivastava, Montreal, Canada
Dr. Ashok Srivastava, Montreal, Canada
Dr. Pram Tappia, Winnipeg, Canada
Dr. Bram Ramjiawan, Winnipeg, Canada
Dr. Devendra Agrawal, Omaha, USA
Dr. Mahesh Gupta, Chicago, USA
Dr. Suresh Tyagi, Louisville, USA
Dr. Harpal Buttar, Ottawa, Canada
Dr. Rakesh C. Kukreja, Virginia, USA
Dr. C.C. Kartha, RGCB, India
Dr. Ramesh Goyal, DPSRU, India
Dr. Sanjay K Banerjee, THSTI, India
Dr. Ajit Mulasari, MMM, India
Dr. Biju Soman, SCTIMST, India
Dr. Manoj Barthwal, CDRI, India
Dr. Trupti, Swain, Odisa, India
Dr. Madhu Khullar, PGIMER, India
Dr. P.S. Dhandapany, INSTEM, India
Dr. Kavita Gulati, VPCI, India
Dr. Arunabha Ray, VPCI, India
Dr. Nitish Mahapatra, IITM, India
Dr. V. Elangoavan, UNOM, India
Dr. P. Gopal, MKU, India
Dr. Kalpana, SR, India

Orations & Awards

Dr. S.K. Gupta Oration
Dr. R.K. Goyal Oration
Dr. H.S. Buttar Oration
Dr. R.K. Kukreja Oration
Dr. N.S. Dhalia Poster Award (4)
Dr. S.C. Tyagi Young Scientist Award
Dr. D.K. Agrawal Young Scientist Award
Prof. C.C. Kartha Travel Awards.

Registration Form

Name (Block Letters): ____________________________
Designation: ____________________________
Qualification: _______ Age: _____ Gender (M/F): _______
Address: _______________________________________
_________________________________________________
Tel/Mobile: ______________________________________
Email: _______________________________________

<table>
<thead>
<tr>
<th>Registration Fee</th>
<th>Upto 31/12/2017</th>
<th>After 31/12/2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indian: Faculty</td>
<td>Rs. 3500</td>
<td>Rs. 4500</td>
</tr>
<tr>
<td>Student</td>
<td>Rs. 2000</td>
<td>Rs. 2500</td>
</tr>
<tr>
<td>Foreign: Faculty</td>
<td>USD 250</td>
<td>USD 300</td>
</tr>
<tr>
<td>Student</td>
<td>USD 100</td>
<td>USD 150</td>
</tr>
</tbody>
</table>

Studentship should be certified by
Head/Chairman of the Institution

Abstract Submitted: Yes / No (Word File, 500 words, Font: Times New Roman, 12)

Accommodation Required: Yes / No
Charges: Faculty Rs. 1500/- per night
        Student Rs. 500/- per night
Cheque/DD in favor of IACS-2018, payable in Madurai

Important Dates

Last Date for Registration: 31/12/2017
Last Date for Abstract Submission: 20/12/2017

IACS Executive Committee

President: Prof. C.C. Kartha
Past President: Prof. S.K. Gupta
Vice Presidents: Prof. R.K. Goyal
                Prof. Rajeev Gupta
                Prof. Airan Balram
                Prof. Ajit Mullassary
Secretary General: Dr. Surya Ramachandran
Treasurer: Dr. Ciji Vergese
Dear colleagues and friends,

It is our pleasure to inform you that 5\textsuperscript{th} meeting of the International Academy of Cardiovascular Sciences – European Section (IACS-AS) “\textbf{Advances in cardiovascular research: from basic mechanisms to therapeutic strategies}” will be held in the Congress Center of the Slovak Academy of Sciences in Smolenice Castle near Bratislava on \textbf{May 23-26, 2018}.

The meeting will be organized by the Institute for Heart Research, Slovak Academy of Sciences in collaboration with IACS-ES, Ministry of Education of the Slovak Republic and other institutions in Slovakia.

\textit{Scientific topics will include}

- Pathophysiology of cardiovascular diseases (CVD), risk factors and comorbidities
  - hypertension, remodeling, hypertrophy, ischemic heart disease, heart failure
  - radiation-induced heart disease, ROS-related pathologies, neurodegeneration
  - cardiomyopathies, mitochondrial disorders
  - arrhythmias, sudden death
  - metabolic abnormalities, endothelial dysfunction
- Myocardial adaptation, novel pathways and targets of cardioprotection, mechanisms of cell survival and death
- Genetic aspects of CVD
- Combination therapy, nutrients, molecular hydrogen in management of CVD

The meeting will feature basic scientific and clinical sessions, including lectures of invited keynote speakers and free oral communications selected from the submitted abstracts. We plan to provide vast opportunities for young investigators to discuss their latest results and to compete in both oral and poster sessions.

\textbf{Deadlines for application: The titles of your presentations (oral, poster) before December 31\textsuperscript{st}, 2017.}

\textbf{Deadlines for abstracts submission: March 1\textsuperscript{st}, 2018.}

Please, do no forget to apply for a membership in IACS and get benefits of substantially reduced registration at the meeting. More detailed and updated information concerning registration, accommodation, abstracts and application forms will be available soon on the homepage of IACS-European Section: \url{http://www.iacs.sav.sk/meetings.html}

Looking forward to meeting you in Slovakia,

Ján Slezák
Honorary President
jan.slezak@savba.sk

Miroslav Barančík
Vice-president
miroslav.barancik@savba.sk

Táňa Ravingerová
President
tatiana.ravingerova@savba.sk

Miroslav Ferko
Scientific Secretary
miroslav.ferko@savba.sk
5th European Section meeting of the International Academy of Cardiovascular Sciences (IACS-ES)

ADVANCES IN CARDIOVASCULAR RESEARCH
from basic mechanisms to therapeutic strategies

May 23 - 26, 2018
Smolenice Castle - Congress center of the Slovak Academy of Sciences
Bratislava, Slovakia

SECOND ANNOUNCEMENT

Organizers

International Academy of Cardiovascular Sciences - European Section
Institute for Heart Research Ministry of Education of SR Slovak Physiological Society
Slovak Academy of Sciences Slovak Society of Cardiology Institute of Cardiovascular Sciences

Under the auspices of the
International Academy of Cardiovascular Sciences
European Academy of Sciences and Arts

CONTACTS
Institute for Heart Research, Slovak Academy of Sciences
Dúbravská cesta 9, P.O.B. 104, 840 05 Bratislava 45, Slovakia
Phone: 00421 2 3229 2421; E-mail: Jan.Slezak@savba.sk; Tatiana.Ravingerova@savba.sk