From June 3 to 6, 2019, the 23rd ISHR WORLD CONGRESS (International Society for Heart Research-ISHR) was held at the China National Convention Center in Beijing, which is the first time an ISHR World Congress was held in China, a country that boasts of an ancient civilization and a long and mysterious history - almost 5,000 years of it. As a long-established ancient capital, Beijing has integrated the quintessence of China’s 5,000 years of history and is a combination of traditional and modern Chinese culture. Consistent with the meeting theme, ‘Happy Heart, Happy Life’, the atmosphere of the meeting was lighthearted. Of course, the nearly 180 renowned experts and scholars and 1050 attendees were most enthusi-
astic about the cutting edge cardiovascular research program. The conference was organized by the Chinese Section of the ISHR and the Chinese Association of Pathophysiology. Professor Zhu Yi (Tianjin Medical University) served as the Chair of the Congress with Professor Xu Ming (Peking University Third Hospital) as Co-Chair. Professor Lea M.D. Delbridge (University of Melbourne), Secretary General of the International Society for Heart Research, served as Chair of the ISHR-International Scientific Program Committee (SPC) with Professor Huangtian Yang (Shanghai Institute of Nutrition and Health, Chinese Academy of Sciences) serving as Co-Chair.

Over 1000 delegates flocked to Beijing from 32 countries across the world, including China, the United States, Japan, United Kingdom, Australia, Germany, France, Italy, New Zealand, and the Netherlands. Working in close collaboration with the ISHR International SPC, the local Scientific Program Committee organized 36 symposia and 2 satellite meetings, which covered the latest research updates in eight main topic areas: Mechanisms of Cardioprotection and Injury, New Insights into Cardiac Dysfunction, Ion Channel Mechanisms and Arrhythmias, Signaling in Cardiac Disease and Therapy, Emerging Concepts for Cardiac Regulation: Beyond the Genome, Cardiac Metabolism and Regenerative Medicine for Heart Disease.

Complementing these symposia, the program included 7 distinguished plenary lectures and 4 presentations by Richard J. Bing Young Investigator Award Finalists. Following the Opening Ceremony, incoming ISHR-International President, Dr. Thomas Eschenhagen (University Medical Center Hamburg-Eppendorf, Germany), chaired the Outstanding investigator Award Lecture. Dr. Bin Zhou (Institute of Biochemistry and Cell Biology, Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences) was recognized as this year’s recipient. He gave a talk titled “Elucidating the origin of new cardiomyocytes in the adult mammalian heart”. His team established new genetic manipulation technologies that precisely target cell populations in vivo and take advantage of different recombination systems to generate new systems that allow us to address cell lineage and fate in cardiovascular development and regeneration. After Dr Zhao’s talk, the Richard J. Bing Young Investigator Award competition was chaired by Dr. Asa Gustafsson from the University of California-San Diego. Dr. Alicia D’Souza (University of Manchester), mentored by Dr. Mark Boyett, Dr. Atsushi Hoshino (University of Pennsylvania), mentored by Dr. Zolt Arany, Dr. Gabriele Schiattarella (University of Texas Southwestern Medical Center), mentored by Dr. Joseph Hill and Dr. Ronald Vagnozzi (Cincinnati Children’s Hospital Medical Center), mentored by Dr. Jeffery Molkentin, were selected as Finalists from a strong field of 23 candidates. Drs Gabriele Schiattarella and Ronald Vagnozzi tied as winners of the competition based on their presenta-
tions titled “Nitrosative stress-dependent suppression of Xbp1s drives heart failure with preserved ejection fraction” and “An acute immune response underlies the benefit of cardiac adult stem cell therapy”, respectively. The Keith Reimer Distinguished Lecture was introduced by Dr David Eisner (University of Manchester), and the award recipient, Dr. Christoph Maack, chair of the Department for Translational Science, University Clinic Würzburg, gave a talk on the topic of “Mitochondrial redox regulation in heart failure”.

The Research Achievement Award lecture on “Precision medicine for heart failure based on molecular mechanisms” given by Dr. Issei Komuro (University of Tokyo) kicked off the second day’s sessions. Dr Komuro was introduced by Dr Yoshihiko Saito, incoming President of ISHR. Later on Tuesday, Dr. Eisner introduced the Peter Harris Distinguished Scientist Award winner, Dr. Sian Harding (Imperial College London). Dr Harding was unable to travel to Beijing; however, she thoughtfully provided a high-quality video recording of her lecture entitled, “Broken heart syndrome – what doesn’t kill you makes you stronger?”.

On the third day, Dr. Lucie Carrier (University Medical Center Hamburg-Eppendorf) presented the Janice Pfeffer Distinguished Lecture about her seminal work on sarcomeropathy. At the start of the ISHR-International General Assembly, Dr. David Eisner was recognized as this year’s recipient of the 2019 Distinguished Leader Award for his many contributions to advancing the mission and objectives of the ISHR. The General Assembly ended with a pictorial celebration of 50 years of ISHR narrated by Dr Elizabeth Murphy, outgoing President of ISHR (NHLBI, NIH).

The activities of young scientists are another key component of ISHR meetings. Early Career Investigator (ECI) activities, including the ECI symposium, organized and presented by young investigators, lunch with senior investigators, and an evening social event, were lively and well attended. This Congress also hosted the first events organized by the newly-formed ISHR Mid-career Investigators (MCIs): a brainstorming panel discussion of plans for the nascent group followed by a networking social event. A detailed account of the ECI and
MCI activities at the Congress are reported later in this issue (pp 6 and 7). In addition, the conference received more than 1000 abstracts and delegates presented 550 posters in 3 days of poster sessions, including more than 260 young scholars’ posters, reflecting the recruitment of outstanding young investigators in cardiovascular research. A group of senior investigator judges chose 9 poster award winners each day, with 27 winners in total (Table 1). Finally, Huang Wei and Ji Liang, together with 32 postgraduates from Peking University Health Science Center, served as volunteers providing high-quality conference services for the Congress.

ISHR’s journal, the *Journal of Molecular and Cellular Cardiology (JMCC)* was also featured at the Congress. On Wednesday evening, the JMCC workshop titled “Publishing in JMCC” was chaired by Dr. R. John Solaro (University of Illinois at Chicago), editor-in-chief of JMCC. Participants included associate editors Drs. Donald M. Bers (University of California, Davis) Elizabeth Murphy (NHLBI, NIH), and Huangtian Yang (Chinese Academy of Sciences). The face-to-face discussions between the Editor-in-Chief, Associate Editors and reviewers, authors and readers, related to the scope of JMCC, how to publish in JMCC, and how to deal with the reviewers questions.

This year, alongside the scientific program, the meeting also provided many networking opportunities for both young and established scientists. On the opening night, a welcome cocktail reception was held for all delegates each day, with 27 winners in total (Table 1). Finally, Huang Wei and Ji Liang, together with 32 postgraduates from Peking University Health Science Center, served as volunteers providing high-quality conference services for the Congress.

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Table 1. Winners of the ISHR-Intl Poster Competition

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<thead>
<tr>
<th>Tuesday, June 4, 2019</th>
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<tr>
<td>Yihua Bei</td>
<td>Shanghai University</td>
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<tr>
<td>Natasha Fillmore</td>
<td>NHLBI/NIH</td>
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<tr>
<td>Alican Güran</td>
<td>King’s College London</td>
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<tr>
<td>Yusuke Higuchi</td>
<td>Kyoto Univ of Medicine</td>
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<tr>
<td>Anand Ramalingam</td>
<td>Universiti Kebangsaan Malaysia</td>
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<tr>
<td>Takaetaro Sadashiro</td>
<td>Univ of Taikuba Hospital</td>
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<tr>
<td>Yanting Song</td>
<td>Capital Medical University</td>
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<tr>
<td>Junhui Sun</td>
<td>NHLBI/NIH</td>
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<tr>
<td>Wang Ying</td>
<td>Fudan University</td>
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<th>Wednesday, June 5, 2019</th>
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<tr>
<td>Rushita A Bagchi</td>
<td>Univ of Colorado</td>
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<tr>
<td>Darrian Bugg</td>
<td>Univ of Washington</td>
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<tr>
<td>Suchi Chang</td>
<td>Fudan University</td>
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<tr>
<td>Hao Jiang</td>
<td>Fudan University</td>
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<tr>
<td>Mark Ranek</td>
<td>Johns Hopkins Medical Inst</td>
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<td>Celine Santiago</td>
<td>Victor Chang Cardiac Res Inst</td>
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<td>Yi Shen</td>
<td>Fudan University</td>
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<tr>
<td>Qingqing Xiao</td>
<td>Shanghai Jiao Tong University</td>
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<tr>
<td>Ya Rong Zhang</td>
<td>Peking Univ Health Sci Ctr</td>
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<th>Thursday, June 6, 2019</th>
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<tbody>
<tr>
<td>Yunhui Du</td>
<td>Beijing Anzhen Hospital</td>
<td></td>
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<tr>
<td>Yufeng Hou</td>
<td>Univ of Oslo</td>
<td></td>
</tr>
<tr>
<td>Leslie Kennedy</td>
<td>NHLBI/NIH</td>
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<tr>
<td>Qasim A Majid</td>
<td>Imperial College London</td>
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<tr>
<td>Bangfen Pan</td>
<td>Univ Med Ctr Hamburg-Eppendorf</td>
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<tr>
<td>Jiliang Tan</td>
<td>Shanghai Inst for Biol Sciences</td>
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<tr>
<td>Yan Wang</td>
<td>Monash University</td>
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<tr>
<td>Jimin Wu</td>
<td>Peking Univ Third Hospital</td>
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<tr>
<td>Shuang Zhao</td>
<td>Nanjing Med University</td>
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Ding Ai, Tianjin Medical University
When I started my term as President, I considered preparation of the next World Congress in Berlin (June 12-15, 2022), working with the Sections to raise ISHR membership, and securing the future of the JMCC as our society journal the most urgent issues. While these remain important tasks, the beginning of my term was dominated by a discussion about our legal status, something I, and probably most, officers of ISHR haven’t been involved with a lot in previous years. So I think the general membership deserves some explanation.

ISHR International was incorporated as a charity in Canada from 1983 until 2019. It was under the leadership of Robert Jennings, chair of the Finance Committee, that ISHR International was granted 501-c(3) status (as a tax-exempted Public Charity) in the US in 2000, when Dr Jennings moved the bank accounts to the US. However, as ISHR was a charity in Canada but the bank accounts were in the US, we were required to file tax returns in both Canada and the US and this required paying accountants in both countries! Furthermore, we were threatened with losing our charity status in Canada because the books were not maintained in Canada. The issue was formally settled with the help of lawyers. This and the added cost of filing tax returns in two countries were reasons that ISHR decided to incorporate in the US and have the new US entity file for its own 501-c(3) status, which was granted in 2012.

From 2012 to 2019, International had 501-c(3) status with the Canadian and the US entity. By 2019, we had spent the money associated with the Canadian entity and we filed with the Canadian Revenue Agency to disband as a Canadian Charity; this request was granted in 2019. The process to incorporate in the US and disband in Canada took a lot of time and dedication from the volunteer ISHR officers, primarily Metin Avkiran, Rick Moss, Tish Murphy and particularly our Treasurer, Asa Gustafsson. I am grateful to all for having managed this difficult task!

ISHR North American Section (ISHR-NAS) was already incorporated in the US with a tax status 501-c(3) acquired in 1973. The Australasian Section became an “Unincorporated Entity” in Australia (“number of people grouped together by a common purpose with club-like characteristics, for example, a sporting club, social club or trade union”, tax exempted) in 1999. The Japanese Section was founded in 1975 and is an “Unincorporated Association”. I remember discussion about this issue in the European Section (ISHR-ES) Council in 2005 when I became a member. At that time, we had no official legal status at all, and the majority of council members thought that we’d better not touch upon this issue. It took until 2015 for ISHR-ES to be finally registered as a “Nonprofit, Tax-Exempted Organization” in the Netherlands, thanks to the dedication of Peter Ferdinandy and Jolanda van der Velden, President and Treasurer, respectively, of the ISHR-ES at the time.

Of note, the status of ISHR International as a 501-c(3) public benefit nonprofit corporation faced long-standing problems with the public support test (PST). This test is calculated over the previous 5 years and requires regular income from several small donors. The problem for ISHR International is that it has essentially only one major source of income: our share of the profits Elsevier makes with our journal, the JMCC. Consequently, we failed the public support test in 2007, which was fixed with the help of an accountant by getting the registration fees for the World Congress in Brisbane counted as donations. We passed 2008 but failed the test again in 2009. We worked to be sure that donations for the World Congress came to International, and we passed the test in 2010, 2011, and 2012.

Counting in the (relatively high) income in 2012 and 2013 for the World Congress in San Diego allowed us to pass the test for the next 5 years (up to 2017)—but for the 2018 return (which was filed in July of 2019), 2013 was no longer included, and we failed (we did not have much income from the World Congress in 2016). The tax rules of 501-c(3) stipulate that one can fail the PST one year, but then the next year must be passed and we were not projected to pass for the return in 2019.

We therefore decided to follow the advice of our lawyer and change from 501-c(3) to 501-c(4), a tax exempt nonprofit organization dedicated to promoting social welfare, which does not require a comparable public support test. A social welfare organization is defined as a program or group designed to ensure the well-being of citizens which fits with the mission of ISHR to promote the discovery and dissemination of knowledge in the fields of cardiovascular science and disease.

(continued on page 15)
Early this year the ISHR announced the creation of a Mid-Career Investigator (MCI) Committee, composed of 2 representatives from each of the 7 ISHR sections, which has been given the charge to promote the career development and advancement of cardiovascular researchers at a middle stage in their career (defined as individuals 8-15 years post terminal degree and those who have not yet reached the rank of full professor).

The first meeting of the newly formed Mid-Career Investigators (MCI) section took place at the ISHR World Congress on the 4th of June in beautiful and bustling Beijing. The vast conference centre with a view onto the famous Birds Nest stadium acted as a perfect backdrop to the event where some 60 “relatively young” scientists gathered to inaugurate the MCI and identify the priorities and expectations of the mid-career stage. In a friendly atmosphere the lively discussions centred around the benefits that this new ISHR section could bring to the MCI community and how best to exploit the opportunities presented. It was wonderful to see so many gathered at the first event and judging by the demand for the microphone, stimulating engagement within this dynamic group will not be a problem over the years to come. MCIs from around the globe were keen to discuss the similarities and differences between the academic systems in different countries, clearly outlining distinct demands for career progression in different countries. It was acknowledged that the MCI community by its very nature is a varied one, ranging from senior postdocs to faculty, and even MCI members holding similar positions in different sections of the ISHR have very different problems, e.g. obtaining research and travel funding is much more difficult in Latin America and India than elsewhere. Nevertheless, what became immediately apparent is the desire for, and clear acknowledgment of, the benefits that greater interaction among the MCIs bring, both in terms of research quality and individual improvement. As demonstrated by the recent JMCC analysis, research papers that have authors from different academic institutions have a greater chance of getting into higher impact journals. The MCI therefore presents a platform for engaging academically and socially and we are confident that we can make the best of the opportunities it presents and build a strong MCI community.

Additional discussion focused on creating workshops and events in the coming years aimed at supporting and promoting mid-career investigators in the cardiovascular community by encouraging new collaborations, organizing socials to facilitate networking, create opportunities for journal reviewer experience through JMCC, developing workshops to educate investigators on funding, hiring and managing trainees and advancing your scientific career. After an hour of the discussion panel, the drinks arrived and it was time to socialise! The evening was spent in a lively and friendly atmosphere, running late into the night. All in all, the first MCI event was a complete success and we hope that this forms a strong base upon which to build a large and dynamic MCI community. In addition to implementing these valuable programming initiatives, the MCI committee will also be supporting and encouraging mid-career focused activities at the individual section meetings and serve as advocates and advisors for some of the unique challenges faced by the mid-career demographic.

Although this committee is focused on investigators at a specific career stage we encourage all scientists to support this initiative and to stay updated on MCI activities and events by following them on Facebook (https://www.facebook.com/groups/2312750082315181/) and LinkedIn (https://www.linkedin.com/groups/12210329/).

Authored by Sarah Franklin (Univ of Utah) and Davor Pavlovic (Univ of Birmingham)

MCI Committee
Section Representatives

Jeff Erickson (AUS)
James Bell (AUS)
Xue-Yan Jiang (CHI)
Han Xiao (CHI)
Davor Pavlovic (EUR)
Nina Kaludercic (EUR)
Uma Nahar Satkia (IND)
Sivasubramanianarrah Ramakrishnan (IND)
Kenji Onoue (JPN)
Mikito Takefuji (JPN)
Alesandro Orlowski (LAT)
Zully Pedrozo (LAT)
Sarah Franklin (NAM)
Rajasekaran Namakkal-Soorappan (NAM)
As at previous ISHR Congresses, the first day of the 2019 ISHR World Congress in Beijing, China, June 3rd, was dedicated to ECI-focused events. This day provided a forum for ECIs from across the globe to present their work on a highly coveted international platform, learn from experiences of experts in the field of cardiovascular science, and most importantly build networks and camaraderie with colleagues from all over the world. The 2019 ISHR World Congress ECI organizing committee, ably led by Kate Weeks (Australia; chair) and Chen Gao (USA; vice-chair), worked closely with faculty advisors Litsa Kranias (USA) and Johannes Backs (Germany) to plan and deliver an exceptional and enriching educational program. The events were well attended by ECIs and established investigators alike.

After being presented with a traditional souvenir gift from China at the registration desk, the ECIs and other attendees were treated to two power-packed ECI Symposia featuring high quality scientific talks that covered a diverse range of topics in cardiovascular science. The participating speakers came from geographically diverse regions of the world, and all speakers delivered impressive presentations. The symposia chairs were Alessandra Ghigo (Italy), Delphine Mika (France), Tyler Bauer (USA) and Farid Khalafalla (USA), who did an exceptional job as moderators by facilitating discussions between the ECI speakers and the audience. The highly competitive ISHR travel awards for ECIs were also presented during the ECI events.

The career development event was a panel discussion on strategies for securing grant funding at all stages of one’s career. Co-chaired by Junjie Xiao (China) and Helena Viola (Australia), this session treated attendees to an informal discussion with independent investigators from all over the world as panelists. Participating panelists included Sakthivel Sadayappan (USA), Huangtian Yang (China), Enzo Porello (Australia), Manuela Zaccola (UK) and David Eisner (UK). The co-chairs did a tremendous job moderating the session where several ECIs asked burning questions regarding grant opportunities and funding success strategies. ECIs also had the opportunity to informally interact with several senior investigators at the ECI luncheon where delicacies from the host country were served during the buffet lunch for the participants.

The much awaited and highly competitive ISHR World Congress Richard J Bing Young Investigator Award competition was held in the afternoon and was chaired by Asa Gustafsson (USA). Four ECI finalists were selected from among 23 applicants to present their research in front of an international judging panel comprised of Asa Gustafsson (Chair; USA), Johannes Backs (Germany), Lucie Carrier (France), Livia Hool (Australia), Tetsuji Miura (Japan), Elizabeth Murphy (USA), Yoshi Saito (Japan), Martin Vila Petroff (UK). The co-chairs did a tremendous job moderating the session where several ECIs asked burning questions regarding grant opportunities and funding success strategies. ECIs also had the opportunity to informally interact with several senior investigators at the ECI luncheon where delicacies from the host country were served during the buffet lunch for the participants.

The 2019 ISHR World Congress ECI Committee

Kate Weeks (Chair; AUS)
Helena Viola (AUS)
Junjie Xiao (CHI)
Ai Ding (CHI)
Alessandra Ghigo (EUR)
Delphine Mika (EUR)
Anupam Mittal (IND)
Lakshmi Subramanian (IND)
Shimizu Takeshi (JPN)
Nakagawa Hitoshi (JPN)
Luis Gonano (LAT)
Jaime Riquelme (LAT)
Chen Gao (NAM)
Randi Parks (NAM)

Faculty Advisors:
Litsa Kranias
Johannes Backs

(continued on page 15)
XANDER WEHRENS, PH.D.

CALCIUM RELEASE UNIT DEFECTS – SOURCE OF MANY CARDIAC EVILS?

WINNER OF THE 2017 OUTSTANDING INVESTIGATOR AWARD
(MAY 30-JUNE 2, 2017: NEW ORLEANS, LA)

Dr. Xander Wehrens obtained his MSc (1997), MD (2001), and PhD (2002) degrees from Maastricht University in the Netherlands. During medical school, he worked in a surgical research lab for several years resulting in his Master’s thesis on the effects of lower limb ischemia-reperfusion injury on mesenteric microcirculation. This thesis was recognized as the best MSc thesis of the year, and resulted in a summa cum laude distinction for the MSc degree. In 1998, Dr. Wehrens started his research on the congenital long QT syndrome, an inherited arrhythmia disorder. In 2000, he received the national ‘Hippocrates Award’ at Leiden University for the best thesis written that year by a medical student in the Netherlands. His MD degree was awarded in 2001 with the distinction summa cum laude.

Supported by scholarships from the ‘Hein Wellens Foundation’ and the ‘Three Lights Foundation’, Dr. Wehrens spent a year in the laboratory of Dr. Robert Kass in the department of Pharmacology at Columbia University in New York City, NY. Following completion of his medical school clerkships, Dr. Wehrens obtained his PhD degree under the mentorship of Drs. Hein Wellens (Maastricht University) and Robert Kass (Columbia University). In his thesis and associated publications in Circulation and Circulation Research, Dr. Wehrens described novel biophysical mechanisms by which human mutations affect the cardiac sodium channel, resulting in lethal arrhythmias. Moreover, his discovery that different disease-causing mutations affect the potential therapeutic effects of some class I anti-arrhythmic drugs represented an early example of precision medicine approaches to the treatment of lethal arrhythmias. His PhD thesis was recognized with the ‘CARIM Dissertation Award’ of Maastricht University for the best Ph.D. thesis of the years 2001-2002.

In 2002, Dr. Wehrens returned to Columbia University in New York to work as a post-doctoral fellow in the laboratory of Dr. Andrew Marks. From 2003 to 2004, he was supported by the “Glorney-Raisbeck Fellowship in Cardiovascular Diseases’ awarded by the New York Academy of Medicine. Under the mentorship of Dr. Marks, he performed seminal work on the role of ryanodine receptor calcium release channels in heart disease. Work during this time led to 20 publications including 2 first author Cell and 1 first author Science publications, as well as the development of a new class of drug molecules for the treatment of heart disease, which are currently under clinical investigation for cardiac indications.

Since 2005, Dr. Wehrens has been on faculty at Baylor College of Medicine, starting as an Assistant Professor. He was promoted to tenured Associate Professor (2009) and Full Professor (2011), and became the Juanita P. Quigley Endowed Chair in Cardiology in 2011. His current academic appointments include Professorships in the departments of Molecular Physiology and Biophysics, Medicine (Cardiology), Pediatrics (Cardiology), and the Center for Space Medicine. In 2012, Dr. Wehrens became the inaugural Director of the newly founded Cardiovascular Research Institute, an inter-departmental institute with over 450 members that collaborate to develop new comprehensive therapeutic approaches and integrative advances in cardiovascular science and medicine.

Dr. Wehrens is nationally and internationally recognized for his pioneering research on cardiac arrhythmias and heart failure and as an expert in cardiovascular medicine. He has authored over 190 peer-reviewed articles in medical journals including Cell, Science, Nature, PNAS, Circulation, J Clin Invest, Circ Res, etc. (total citations >9,900, h-index 52). He serves on the editorial board of many international journals including Circulation Research, J Mol Cell Cardiol, Heart Rhythm, JACC Basic Transl Res, etc., and has given over 160 invited lectures and seminars at international meetings and universities worldwide. He received numerous national and international awards and
binding of protein phosphatases to RyR2
studies, he demonstrated that reduced
activity in persistent AF. In subsequent
the likelihood of spontaneous triggered
phosphorylation, which in turn increased
kinase (CaMKII) leads to enhanced RyR2
calcium/calmodulin-dependent protein
he discovered that increased activity of
dysmial and permanent AF. In earlier work,
intracellular calcium handling in atrial
AHA. For over a decade, Dr. Wehrens
demonstrated a causal role for
abnormal RyR2 activity in HF progress-
In addition, Dr. Wehrens demonstrated a causal role for
abnormal RyR2 activity in HF progression. In particular, it was shown that
RyR2 phosphorylation at serine 2814 by CaMKII represents a key molecular
switch in causing intracellular calcium
leakage that drives adverse remodeling
associated with HF development. In
addition, Dr. Wehrens has performed
seminal work on junctophilin-2 (JPH2), a protein critical for the maturation and
maintenance of calcium release units in
cardiomyocytes. Dr. Wehrens’ team
demonstrated that downregulation of
JPH2 leads to acute HF, whereas gene
therapy with JPH2 in mice with pressure
overload could prevent the progression
of HF. Finally, Dr. Wehrens identified
SPEG (striated preferentially expressed
protein kinase) as a key molecule that
interacts with both RyR2 and JPH2 within
calcium release units. Downregulation of
SPEG – as seen in failing human
hearts – was causally linked to the loss of
transverse tubules associated with
aberrant calcium handling.

The Wehrens lab pursues the develop-
ment of novel therapeutic approaches for
arrhythmias and heart failure by target-
ing intracellular calcium handling. New
molecular targets are being identified
using human genetics, induced pluripo-
tent stem cells (iPSC) from patients with
inherited cardiovascular diseases, trans-
genic mouse models of heart disease, and
adeno-associated viruses for gene therapy
experiments. In addition, Dr. Wehrens is
a founding partner of Elex Biotech, Inc,
a start-up company that develops RyR2
modulating small molecule drugs for the
treatment of catecholaminergic polymor-
phic ventricular tachycardia (CPVT), AF,
and heart failure.

Dr. Wehrens is passionate about teaching
and mentoring students and junior col-
leagues. He has mentored over 50 train-
ees in his lab including 7 undergraduate
students, 15 PhD students, and 28 post-
docs, many of whom have won awards
or moved into faculty positions after
their training. Since 2008, he serves as
the co-director of the Medical Scientist-
Training program at Baylor College of
Medicine. At Baylor College of Medicine,
he received the Fulbright & Jaworski
L. L. P. Faculty Excellence Award for
Teaching and Evaluation. Dr. Wehrens is
also actively involved in several national
and international societies. He served on
the ‘Electrical Signaling, Ion Transport,
and Arrhythmias’ study section from the
National Institutes of Health. Dr. Wehrens
served as a member of the steering
committee of the Excitation-Contraction
interest group of the ISHR. Dr. Wehrens
was member of the selection committee
for the Melvis L. Marcus Award, and cur-
rently serves as a member of the Board of
Directors of the Houston chapter of the
American Heart Association. Moreover,
he currently co-chairs the ASCI Young
Physician-Scientist Awards committee.
Finally, Dr. Wehrens currently chairs
the Heart Rhythm Society’s Research
Committee, after having served as the
chair of the Research Fellowship commit-
tee for four years.
The 43rd Annual Scientific Meeting of the International Society for Heart Research (ISHR) Australasian Section was held in Adelaide (South Australia) from August 8-11th 2019, in conjunction with the 67th Annual Scientific Meeting of the Cardiac Society of Australia and New Zealand (CSANZ). The meeting was opened with a welcome performance by the traditional owners of the land, the Kaurna People, followed by a welcome by CSANZ convenor Professor Stephen Duffy (The Alfred Hospital, AUS).

This year’s prestigious R T Hall Lecture was given by Dr Francis Marchlinski, distinguished Professor of Medicine and Director of Electrophysiology at the University of Pennsylvania (USA), who discussed arrhythmogenic right ventricular cardiomyopathy and the challenges that may arise in its diagnosis and treatment. The Kempson Maddox Lecture was presented by Professor Jonathan Kalman (Royal Melbourne Hospital, AUS), who focussed on the mechanisms of atrial arrhythmias and potential implications for its treatment and prevention. The CSANZ Basic Science Lecture was presented by Professor Bronwyn Kingwell (Baker Heart and Diabetes Institute, AUS), who discussed novel metabolic approaches to improving outcomes after acute coronary syndrome. These lectures represented the widespread areas that would be discussed throughout the course of the conference, ranging from mechanisms and preclinical discovery science to public health strategies and clinical and surgical settings.

This year we were delighted to welcome ISHR invited international speakers Professor Joseph Wu (Stanford Cardiovascular Institute, USA), and Professor Christine Des Rosiers (Institute de Cardiologie de Montreal, CANADA). Professor Wu gave interesting presentations on the progress and challenges surrounding cardiovascular regenerative medicine, as well as the use of stem cells and genomics for precision cardiovascular medicine. Dr Christine Des Rosiers gave insightful talks on the use of plasma metabolomics to decipher metabolic abnormalities in human heart failure and emerging clinical applications, as well as protecting the diabetic heart through MK2 modulation of lipid metabolism. Each of these talks were perfectly complemented by presentations from preclinical discovery scientists and clinicians from the Australasian section; a testament to the programming efforts of section President Professor Livia Hool (University of Western Australia, AUS) and local organising committee member Associate Professor Julie McMullen (Baker Heart and Diabetes Institute, AUS).

The Australasian section of the ISHR has a strong focus on facilitating Early Career Investigator (ECI) career development. These include numerous ECI speaking and prize opportunities. This year’s Early Investigator Symposium included five outstanding presentations from Dr Daniel Donner (Baker Heart and Diabetes Institute, AUS), Dr Sarbjot Kaur (The University of Auckland, NZ), Dr Jonathan Sen (Western Health/Baker Heart and Diabetes Institute, AUS), Dr Daniel Tardo (Victor Chang Cardiac Research Institute, AUS) and Dr Stephanie Montalto (Royal Melbourne Hospital, AUS). Joint best oral presentation was awarded to Dr Daniel Donner and Dr Sarbjot Kaur for their talks entitled “A novel non-invasive measurement of myocardial infarct size in the mouse using cardiac ultrasound tissue displacement mapping” and “Mitochondrial
function, location and abundance in ventricular tissue from neonatal and young adult rat hearts” respectively. The runner-up prize was awarded to Dr Daniel Tardo for his talk on “T wave morphology biomarkers in congenital and acquired long QT syndrome”.

The Early Investigator Symposium was followed by an Early Investigator Workshop entitled “Improving the quality and translation of discovery science” organised by Associate Professor Julie McMullen (Baker Heart and Diabetes Institute, AUS) and Dr Melissa Reichelt (University of Queensland, AUS). The main theme of this session surrounded the importance of improving the quality and translation of pre-clinical/discovery science. This included topics such as how granting agents/funding bodies are improving the quality of discovery and preclinical science, the importance of reliable data and negative results, as well as unbiased laboratory methods to assist in discovery through to translational science. These informative and thought-provoking presentations were given by Associate Professor McMullen, Dr Yow Keat Tham (Baker Heart and Diabetes Institute, AUS), Dr Reichelt, Dr James Hudson (QIMR Berghofer Medical Research Institute, AUS), Dr Daniel Donner, Dr Kelly Smith (University of Queensland, AUS) and Professor Salvatore Pepe (Murdoch Children’s Research Institute, AUS). Presentations were followed by a panel discussion with additional panelists Professors Christine Des Rosiers and Joseph Wu.

The annual ISHR AGM and Dinner was held on Friday August 9th 2019 at The Playford Hotel. During the AGM, section President Professor Livia Hool, Professor Rebecca Ritchie (Member Secretary), Dr Jim Bell (ECI Development) and Dr Helena Viola (ECI Representative) gave reports on the activities of the Australasian Section over the past year. In addition, Professor Hool gave thanks to ISHR Australasian Section Council Members whose terms were ending, including: Associate Professor Salvatore Pepe (Murdoch Children’s Research Institute, AUS), Professor Lea Delbridge (University of Melbourne, AUS), Associate Professor Julie McMullen (Baker Heart and Diabetes Institute, AUS), Dr James Hudson (QIMR Berghofer Medical Research Institute, AUS), Associate Professor Pete Jones (University of Otago, NZ), Dr Melissa Reichtel (University of Queensland, AUS), and Associate Professor Bing Wang (Monash University, AUS).

During the ISHR dinner, prizes were awarded for this year’s most outstanding ECI and student works. This year’s ISHR Student Investigator Finalists were Mr Sebastian Bass-Stringer (Baker Heart and Diabetes Institute, AUS), Ms Helen Waddell (University of Melbourne, AUS), Ms Laetitia Hughes (Harry Perkins Institute of Medical Research, AUS) and Mr Thomas Agbaedeng (University of Adelaide, AUS). The calibre of presentations this year was outstanding, reflected by the awarding of joint first prize to Ms Laetitia Hughes for her talk entitled “Misregulation of mitochondrial protein synthesis leads to cardiomyopathy” and Ms Helen Waddell for her presentation entitled “Microelectrode array screening of different cardiomyocyte cultures reveals inherent disparities in cardiac cell electrophysiology”.

During the ISHR dinner, prizes were awarded for this year’s most outstanding ECI and student works. This year’s ISHR Student Investigator Finalists were Mr Sebastian Bass-Stringer (Baker Heart and Diabetes Institute, AUS), Ms Helen Waddell (University of Melbourne, AUS), Ms Laetitia Hughes (Harry Perkins Institute of Medical Research, AUS) and Mr Thomas Agbaedeng (University of Adelaide, AUS). The calibre of presentations this year was outstanding, reflected by the awarding of joint first prize to Ms Laetitia Hughes for her talk entitled “Misregulation of mitochondrial protein synthesis leads to cardiomyopathy” and Ms Helen Waddell for her presentation entitled “Microelectrode array screening of different cardiomyocyte cultures reveals inherent disparities in cardiac cell electrophysiology”.

Past President Professor Livia Hool with incoming Section President Professor Fadi Charchar.

ISHR Student Investigator Prize Finalists: Ms Laetitia Hughes (Winner), Ms Helen Waddell (Winner), Mr Sebastian Bass-Stringer and Mr Thomas Agbaedeng.

ISHR Free Communication Oral Prize winner Mr Ashay Shah. Pictured with (left to right) Associate Professor Julie McMullen, Professor Livia Hool and Professor Fadi Charchar.
Further demonstrating the ISHR Australian section’s commitment to supporting ECI development, additional awards presented at the meeting included the ISHR Free Communication Oral Prize, ISHR Mini-Oral Student Prize and ISHR Student Poster Prize. Free Communication Oral Prize finalists included Mr Thomas Agbaedeng (University of Adelaide, AUS), Ms Jordon Irwin (Central Queensland University, AUS), Mr Simon Wells (University of Melbourne, AUS), Mr Warren Pavey (Heart and Lung Research Institute of Western Australia, AUS) and Mr Ashay Shah (University of Western Australia, AUS), with the winner being Mr Ashay Shah for his talk entitled “Optimal design of dendrimer nanotechnology to deliver a peptide as a therapeutic to the heart”. The ISHR Mini-Oral Student Prize was awarded to Ms Khalia Primer (South Australian Health and Medical Research Institute, AUS) for her talk entitled “High-density lipoproteins rescue diabetes-impaired angiogenesis by restoring cellular metabolic reprogramming responses to hypoxia”, while the ISHR Student Poster Prize was awarded to Ms Alexandra Nesbitt (University of Newcastle, AUS) for her poster entitled “Neutralisation of the Anti-Angiogenic Isoform of Vascular Endothelial Growth Factor-A: VEGF-A165b is Associated with Weight Gain Independent of High Fat/High Sucrose Feeding”.

Special mention goes to ISHR ECI member Dr Lucy Murtha (University of Newcastle, AUS), who was awarded the 2019 CSANZ Ralph Reader Prize for Basic Science for her presentation entitled “Fibulin-3 is necessary for the formation of infarct-induced cardiac fibrosis”. We also congratulate Professor Livia Hool, who was awarded this year’s R T Hall Prize. The R T Hall Prize is the most prestigious research award of the CSANZ, and recognises the achievements of senior and established investigators or groups. Professor Hool is the first individual female pre-clinical scientist to be awarded this prize since its inception in 1965.

Following the success of previous years, the ISHR Early Investigator Speed Networking luncheon was again organised by ECI representative Dr Helena Viola (University of Western Australia, AUS). An outstanding 70 pre-clinical discovery and clinician ECIs were registered to attend the event. In line with a speed networking format, ECIs were divided into small groups led by prominent researchers and clinicians in the field, where they were free to discuss all aspects of career progression. This year’s panellists included Professor Christine Des Rosiers (Institute de Cardiologie de Montreal, CANADA), Dr James Hudson (QIMR Berghofer, AUS), Professor Carl Schultz (Royal Perth Hospital, AUS) and Professor Joseph Wu (Stanford Cardiovascular Institute, USA). Some popular discussion topics included funding expectations for post-doctoral researchers, transitioning between different research groups, skills and requirements for successfully attaining post-doctoral positions, as well as balancing clinical and research careers. We thank the mentors for sharing their invaluable knowledge and career experiences, and of particular note, for happily continuing these discussions with ECIs beyond the networking session, throughout the course of the meeting.

Overall, the wide-ranging depth and breadth of topics and speakers at this year’s meeting provided an excellent opportunity for ECIs, and established researchers and clinicians to interact, network and foster collaborations. We look forward to another stimulating meeting planned by ISHR Australasian Section President Professor Fadi Charchar and local organising committee member Associate Professor Enzo Porrello (Murdoch Children’s Research Institute, AUS) in the Gold Coast next year!

Ms Tanya Solomon and Dr Helena Viola

The next CSANZ / ISHR Australasian Section meeting will be held in the Gold Coast, Queensland, at the Gold Coast Convention and Exhibition Centre, August 13-16 2020.
Rio Juni, M.D., Ph.D.
Amsterdam UMC, The Netherlands
Host: Prof Wen Wang
Capital Medical University

My research focuses on the role of cardiac microvascular endothelial cells (CMECs) on the regulation of cardiomyocyte (CM) contraction and relaxation in the context of heart failure with preserved ejection fraction (HFpEF). I am a postdoc at the Department of Physiology, Amsterdam University Medical Centers, under the supervision of Prof Victor van Hinsbergh and Prof Jolanda van der Velden, given their expertise in endothelial and cardiomyocyte biology, respectively. I have recently shown that CMECs enhance CM contraction and relaxation in an in vitro co-culture that I have established. This beneficial effect of CMECs is abrogated upon exposure of CMECs to pro-inflammatory mediators, leading to increased reactive oxygen species (ROS) and reduced endothelial nitric oxide (NO) levels. Interestingly, Empagliflozin (an SGLT2 inhibitor) mitigates the oxidative stress response in CMECs and restores its beneficial effect on CM contraction and relaxation.

The reduced level of NO is indicative of scavenging of this molecule by ROS. This process leads to formation of peroxynitrite with subsequent nitrosative damage on proteins, forming 3-nitrotyrosine (3-NT) group. I visited the Lab of Prof Wen Wang to study how to assess nitrosative damage. The lab focuses on hyperhomocysteinemia and the related cardiovascular consequences and has a vast expertise in assessing nitrosative damage on proteins involved in hyperhomocysteinemia. Using a CM cell line, I assessed 3-NT formation in overall proteins using immunoblotting or in a specific protein by combining this method with immunoprecipitation. I will implement this methodology to advance my study on HFpEF, as it is characterized by nitrosative stress. The visit has been very delightful, given the hospitality of all the members of the lab, and has been very fruitful. In addition to the methodology that I have been trained with, I assisted the lab in critically reading and editing one of the manuscripts, which has been recently accepted for publication. I am grateful to have received this funding from ISHR, which allowed me to do this visit and which has facilitated a network development and fostered future collaborative work with the Lab of Prof Wang.

Deli Zhang, Ph.D.
Amsterdam UMC, The Netherlands
Host: Prof Shi-Qiang Wang
Peking University

First of all, thank you for providing me the lab visit grant. I am Deli Zhang, a postdoctoral researcher under the supervision of Prof Bianca Brundel (Department of Physiology, Amsterdam UMC, VUMC, Vrije Universiteit Amsterdam). I visited the lab of Prof Shi-Qiang Wang (State Key Laboratory of Membrane Biology, College of Life Sciences, Peking University), who is an expert in electrophysiology and calcium imaging in the heart.

SR and mitochondria are the central organelles responsible for normal cardiomyocyte contraction by controlling calcium and energy (ATP) homeostasis. The crosstalk between SR and mitochondria via contacts, termed SR-mitochondria contacts (SMCs), is essential for normal mitochondrial and cardiac function. In my current project, I study how microtubules regulate the SMCs and thereby affect the calcium signaling and contractile function of the heart in experimental model systems of atrial fibrillation. I regularly measure calcium transients in our tachypaced atrial mouse and rat cardiomyocyte models of atrial fibrillation. Calcium sparks indicate leakage of calcium from SR and are therefore a very important parameter to measure for arrhythmogenesis during atrial fibrillation. Our lab is equipped with a high-speed Nikon AR1 imaging microscope and it is, in principle, able to measure calcium sparks. Currently, we are establishing a protocol to measure calcium sparks in atrial cardiomyocytes. The work visit to Prof. Wang’s lab enabled me to learn technical details for measuring (continued on page 15)
**Calendar**

- **May 26–29, 2020.** XXXVIII Annual Meeting of the North American Section. Denver, CO.
  Inquiries: Timothy McKinsey, timothy.mckinsey@ucdenver.edu.
- **June 30 – July 3, 2020.** XXXVI Annual Meeting of the European Section. Torino, Italy.
  Inquiries: Alessandra Ghigo, ghigo.alessandra@gmail.com.
- **July 7–8, 2020.** Annual Meeting of the Latin American Section. São Paulo, Brazil.
  Inquiries: Emiliano Medei, emedei70@hotmail.com.
- **August 13 – 16, 2020.** XLIV Annual Meeting of the Australasian Section (held jointly with the Cardiac Society of Australia and New Zealand). Gold Coast, Queensland, Australia.
- **October 18-20, 2020.** XV Annual Meeting of the Chinese Section. Beijing, China.
  Inquiries: Ming Xu, xuminghi@bjmu.edu.cn.
- **December 11-12, 2020.** XXXVII Annual Meeting of the Japanese Section. Tokyo, Japan.

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**2019-2022 ISHR-International Council**

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**2019 Fellows of the ISHR**

- Zoltan Arany, *NAS*
- Hossein Ardehali, *NAS*
- Burns Blaxall, *NAS*
- Heiping Cheng, *China*
- Michael Davis, *USA*
- Lea Delbridge, *Australia*
- Dobromir Dobre, *Germany*
- Peter Ferdinand, *Hungary*
- Joshua Goldhaber, *USA*
- Ana Maria Gomez, *France*
- Derek Hausenloy, *Singapore*
- Livia Hool, *Australia*
- Yu Huang, *China*
- Masaki Ieda, *Japan*
- Raj Kishore, *USA*
- Julie McMullen, *Australia*
- Yasachika Takeishi, *Japan*
- Jamie Vandenberg, *Australia*
- Martin Vila-Petroff, *Argentina*
- Xuejun Wang, *USA*
- Rui-ping Xiao, *China*
- Huangtian Yang, *China*
- Bin Zhou, *China*
- Yi Zhu, *China*
President's Letter, continued from page 5)

This required a change of bylaws, of which the following paragraph of Article II: Purpose appears most relevant:

ISHR has been organized and shall be operated exclusively for social welfare. No part of the net earnings of ISHR shall inure to the benefit of, or be distributable to its members, officers, or other private persons, except that the ISHR shall be authorized and empowered to pay reasonable compensation for services rendered and to make payments and distributions in furtherance of the purposes set forth in Article II. No substantial part of the activities of the ISHR shall include attempting to influence legislation; and the ISHR shall not participate in or intervene in (including the publishing or distributing of statements) any political campaign on behalf of any candidate for public office. Notwithstanding any other provision of these Articles, the ISHR shall not, except to an insubstantial degree, engage in any activities or exercise any powers that are not in furtherance of the purpose of ISHR's social welfare mission.

We had a long and intense discussion about the proposed change at the end of 2019. The final vote of ISHR International Council was 20 Yes, 4 No, and 3 Abstentions. Given the required 2/3 Yes votes, the motion passed and we filed for a change of status in December 2019. The final approval by the US Authorities is pending, but expected in 2020.

I am sorry for burdening you with these details on something we as scientists are rarely involved in and certainly most of us are not interested in, but being in safe territory with our legal tax status is important. The proposed change of status stirred some emotions and fears, and therefore I decided to try to explain the complicated matter. I am glad that we finally made this step and can now concentrate on our core mission – to advance research in the cardiovascular field.

There are lots of activities going on. The Sections are busy preparing the upcoming meetings, and the Mid-Career Investigators (MCI) got together, formed a lively group and developed ideas on how to promote scientists at this important stage of their career and what role ISHR could play. Preparations for the 2022 World Congress in Berlin are ongoing. We will test a new business model, which should reduce the administrative and financial burden of the local organizers and ISHR, and we are excited to start thinking about the scientific programme. Any ideas are welcome; please let us know!

Best wishes

Thomas Eschenhagen, MD
President ISHR

ECI Events, continued from page 7)

(Argentina) and Yi Zhu (China). Finalists included Alicia D’Souza (UK), Atsushi Hoshino (Japan), Gabrielle Schiattarella (USA) and Ronald Vagnozzi (USA). The 2019 Richard J Bing Young Investigator Award was presented jointly to Gabrielle Schiattarella (“Nitrosative stress-dependent suppression of Xbp1s drives heart failure with preserved ejection fraction”) and Ronald Vagnozzi (“An acute immune response underlies the benefit of cardiac adult stem cell therapy”). The winners are trainees in the labs of Drs. Joseph Hill and Jeffrey Molkentin, respectively.

ECIs at the congress also showcased their work during poster presentation sessions held on June 4th, 5th and 6th. Over 550 research abstracts were registered for poster presentations, of which 27 outstanding presenters were awarded the ISHR International Poster Prize for their excellent research presentations as adjudicated by a panel of expert judges. Early career investigators were also treated to an extensive and impressive menu of local food at the ECI Social Event held at the Mei Zhou Dong Po restaurant. The event was very well attended and allowed for ECIs from across the globe to get to know each other in a casual setting. Kudos to the local ECI organizing committee for choosing such a fantastic location to host the event!

Overall, the hard work and dedication of the 2019 ECI Organizing Committee, along with the guidance from the faculty advisors, made the Congress a very enjoyable and enriching experience for the ECIs. The organization of Congress events and hospitality offered by the local hosts made attendance at this meeting very memorable. We hope to see you all at the XXIV ISHR World Congress in Berlin in 2022!

Rushita Bagchi, University of Colorado

Bursary Reports, continued from page 13)

...calcium sparks and therefore will boost our study process. I not only learned how to measure calcium sparks with high-speed confocal imaging, but also the algorithms for quantifying calcium sparks automatically. This saves me a lot of time compared to manual quantification.

In the future, I plan to focus on studying how metabolic risk factors contribute to arrhythmogenesis. The calcium spark technique is therefore also essential for my future research projects.

Besides the techniques to measure calcium sparks, I also learned lab management skills from Prof Wang. I joined the research meeting and had constructive discussions with Prof Wang, PhD students, and postdocs from his group. And we are willing to collaborate on research projects in the future.

This was such a nice and fruitful visit. Thank you again for making the visit possible.
We were saddened to learn of the passing of Dr Lionel H Opie (Professor of Medicine Emeritus, Hatter Institute for Cardiovascular Research in Africa, University of Cape Town) on February 20, 2020. A full obituary will be published in issue 25.2 of the newsletter.

In Memoriam

Dr Lionel H Opie
1933-2020