WELCOME TO LIMA

14th PVRI Annual World Congress on Pulmonary Vascular Disease

Date // 29 January - 2 February 2020

Hotel // The Swissotel • Lima • Peru
Welcome to our Annual World Congress 2020 in Lima...

After Barcelona, the ancient city on the Mediterranean Sea, we are now in ‘la Perla de Pacifico’ which, like Barcelona, is amazingly rich in history, both pre- and post-Columbian. We are grateful to our South American colleagues for hosting us and for promoting the PVRI in this vibrant area of the world. I am sure you are in for much discovery, scientific of course, but also artistic and culinary. There is an abundance of museums and interesting sites in and around the city, which you will have the leisure to visit on organised sightseeing tours on Friday afternoon. Cuzco and Machu Picchu are planned destinations for some of you. Be reassured, we have special topics of discussion related to high altitude and hypoxia to prepare you for the trip.

We are greatly indebted to our Scientific Committee, co-chaired by Max Gassmann and Harm Jan Bogaard, including Elena Goncharova, David Montani, Zhenguo Zhai and Paul Corris. They have put together an outstanding scientific programme, which will appropriately cover themes of hypoxia and high altitude on cellular metabolism, genetics of PAH, and pulmonary vascular orphan diseases. The programme will also include rapid-fire presentations of the most meritorious abstracts by our young scientists, as well as South American and global PH issues of utmost interest to the PVRI for years to come.

Once again, we could not have organised this meeting without our devoted and faithful staff. In closing, this will be my last meeting serving you as PVRI President. I have thoroughly enjoyed every minute of the past two years in this capacity. It has been an honour and a humbling learning experience, rich in scientific ideas, new international acquaintances and fascinating places. There have also been some challenges. However, in great part thanks to you, we have witnessed progress in many areas and enjoyed a broadening PVRI audience. I could not have done my job without the help of our fantastic team of staff and truly amazing colleagues on the Board of Directors and Executive Committee. I am very pleased to pass on the baton to Werner Seeger, our new President, who will undoubtedly take us to new heights and exciting scientific ventures.

Enjoy the meeting and do not miss the Gala Dinner on Saturday, which will offer a unique opportunity to mingle with colleagues and local hosts, to discuss science, adventures, new discoveries and so much more. Bienvenidos a todas y todos en Lima!

We hope you enjoy our Annual Congress which brings our members together from all over the world.
It is wonderful that we can support and energise the valuable work of our colleagues in Latin America and spread the mission of the PVRI throughout this continent, with the hope that many new members from South America will join our community.

Our scientific programme offers many highlights and promises plenty of discussion at the cutting edge of science. A heartfelt thanks to my fellow colleagues on the Scientific Organising Committee, in particular Max Gassmann and Harm Jan Bogaard, for putting together an excellent mix of topics in clinical and basic science, covering a range of novel insights. I am especially pleased to see many of our promising young scientists presenting talks and posters. Supporting and encouraging the work of the next generation of PH physicians is part of the PVRI mission and something I shall give particular focus to during my PVRI presidency.

However, the uniqueness of the PVRI is its global presence, uniting members from all over the world in ‘friendship through science’. For this reason, I am delighted that as part of our programme, we have kept Friday afternoon completely free, so that we can all join in a sightseeing tour of Lima. Visiting this spectacular city of glorious architecture and ancient history, as well as the Welcome & Networking Reception and Gala Dinner, are some of the social highlights in the programme, which are not to be missed.

This leads me on to expressing a big thank you to our administrative team led by Stephanie Barwick and to our Events Manager, Andrea Rich, for their tireless efforts in organising this meeting. What looks like a seamless event, has been months of planning and hard work, especially for a very small team.

I warmly invite you all to join us during the PVRI Annual General Meeting, which takes place on Thursday evening. We will be presenting our newly updated Digital Clinic, which includes 12 new patient cases, and will be giving you an overview of our exciting plans for a Global Registry in PH and how you can get involved.

Finally, we are proud to announce that the 2nd International Consortium for Genetic Studies in PAH is again associated with our Annual Congress. It starts immediately after the end of our Congress on Sunday afternoon, providing further opportunity to share top science in pulmonary hypertension.

I wish you all a great Congress with plenty of meaningful conversations and experiences.

I look forward to meeting you all in Lima and continuing PVRI’s good work!

Foreword from our incoming President...

It is with great pleasure that I welcome you all to Lima. I am delighted that my inaugural meeting as the PVRI President takes place in South America, a continent of great heritage and culture.
“Great science, great interactions, great contributions to the PH community. Overall an outstanding and well organised meeting”.

Isabel Blanco, Spain
BARCELONA 2019

Our Scientific Highlights

High altitude trail: Salkantay Mountain
Bienvenidos a Lima!

- Elena Goncharova
- Harm Jan Bogaard
- David Montani
- Zenguo Zhai
- Paul Corris

Max Gassmann

Maestría en Suecia con el profesor de Filología Sueca del Universitat de Barcelona, donde trabajó en el área de la lingüística histórica y la filología sueca. Posteriormente, se unió al equipo del profesor Paul Berg (Premio Nobel de Química) en la Universidad de California, San Diago, y con el experto en pulmonología y hipertensión pulmonar, desarrollo de nuevas estrategias terapéuticas. Actualmente, su investigación se centra en el desarrollo de nuevos tratamientos para la enfermedad vascular pulmonar.

Harm Jan Bogaard

Harm Jan Bogaard, MD, PhD, is a professor of Experimental Pulmonary Medicine at the Amsterdam University Medical Centers. He leads translational research at the Centre for Excellence in Pulmonary Hypertension and takes part in clinical care for PAH and PH patients.

Elena Goncharova

Elena Goncharova is an Associate Professor of Medicine and Biostatistics at the University of Pittsburgh School of Medicine. She received her PhD from the Russian Academy of Science and completed her postdoctoral training at the University of Pennsylvania.

David Montani

David Montani, MD, PhD is a Professor at the University of Pennsylvania College of Medicine for Pulmonary Hypertension in the Department of Respiratory Medicine. He is a senior investigator and leading researcher of the NIH-funded Center of Excellence in Pulmonary Hypertension.

Zenguo Zhai

Zenguo Zhai, board-certified in Pulmonary and Critical Care Medicine, was educated at Qingdao Medical College and Capital Medical University. He has been involved in clinical research for PAH and PH-related diseases in patients with chronic obstructive pulmonary disease (COPD) and chronic thromboembolic pulmonary hypertension.

Paul Corris

Paul Corris is Emeritus Professor of Thoracic Medicine and faculty member of the Institute of Cellular Medicine at Newcastle University. He holds an honorary consultant physician position at The Newcastle Hospitals NHS Foundation Trust Newcastle Upon Tyne UK.

Welcome to Lima 2020

Our Scientific Leaders

Queridos participantes,

Bienvenidos a Lima!
Honouring Pioneers in the Field in our Named Lectures at this Year’s Congress...

Stuart Rich
Dr Stuart Rich is a cardiologist and Director of the Northwestern Medicine’s Pulmonary Vascular Disease Programme at the Bluhm Cardiovascular Institute and a Professor of Medicine at the Northwestern University Feinberg School of Medicine. He is one of the world’s most recognised experts on pulmonary vascular diseases. For over three decades he has dedicated his research and clinical efforts to finding better solutions for pulmonary hypertension. He is one of the founding members of the PVRI.

Sheila Glennis Haworth CBE
Professor Haworth has had an interesting and fascinating career, which has fallen into three overlapping phases: a clinical academic, founder of the UK Pulmonary Hypertension Service for Children, and a leading player in the PVRI. Professor Haworth was Head of Cardio-Respiratory Sciences at the Institute of Child Health, University of London. She is now Professor Emeritus at University College, London, UK.

Professor Haworth has been appointed Commander of the Most Excellent Order of the British Empire (CBE) for her contribution to the National Health Service in the 2007 British New Year’s Honours list.

Ghazwan Butrous
Professor Ghazwan Butrous was awarded the chair of Cardiopulmonary Science at the University of Kent, UK, in 2006. Professor Butrous is one of the founding members and is President Emeritus of the PVRI.

He graduated from the Baghdad Medical College in 1976. From 1990 – 1990, he worked in London, where he was a Fellow and a Lecturer of Cardiology at St Bartholomew’s Hospital Medical School and St George’s Hospital Medical School. He was a director of the Cardiac Electrophysiology Laboratory at St George’s from 1985 to 1990.

Introducing our keynote speakers...

STUART RICH LECTURE
Mark Geraci
Indiana University, USA

Dr Mark Geraci completed his undergraduate training at the University of Colorado, Boulder. Following graduation from the Johns Hopkins University School of Medicine, he completed training in Internal Medicine at the Massachusetts General Hospital. After training in Pulmonary Diseases and Critical Care Medicine at the University of Colorado Dr Geraci remained to Head the Pulmonary Division. In 2010, he became the John B. Hickam Professor and Chair of Medicine at Indiana University.

SHEILA GLENNIS HAWORTH LECTURE
Samira Lakhal-Littleton
University of Oxford, UK

After studying Human Genetics at University College London, Professor Lakhal-Littleton joined the University of Oxford in 2004 as a DPhil student in a laboratory at the Weatherall Institute of Molecular Medicine.

In 2007, she went on to undertake postdoctoral position under Professor Sir Peter Ratcliffe, where she developed an interest in the interplay between Hypoxia Inducible Factors (HIFs) and iron homeostasis. In 2012, she was awarded a British Heart Foundation Intermediate Basic Science Research Fellowship that enable her to establish her own research group at the University of Oxford. Her research aims at establishing the mechanisms and importance of local iron control in the cardiovascular system. She is now associate professor of Physiology, Medical Sciences Division, University of Oxford, UK.

GHAZWAN BUTROUS LECTURE
Gregory Roth
University of Washington, USA

Gregory Roth, MD, MPH, is Associate Professor in the Division of Cardiology and Adjunct Associate Professor of Health Metrics Sciences a the Institute for Health Metrics and Evaluation (IHME) at the University of Washington School of Medicine.

At IHME, he leads cardiovascular disease modeling for the institute’s landmark Global Burden of Disease Study. Dr Roth’s research focuses on global cardiovascular health surveillance; population health, and quality of care and outcomes for cardiovascular diseases, such as heart failure, coronary heart disease, and pulmonary hypertension.

Our people
are our strength and a voice of authority worldwide
“Thanks again, PVRI Barcelona was an amazing experience, it was an incredibly well put together event, and it was really like a dream come true for me, I am very grateful and appreciative.”

Ramon Ramirez III, USA
BARCELONA 2019

PRE-Congress Meetings

Wednesday 29 January

PVRI Board of Directors meeting

09:00 - 17:00

Held in room // Inka 2

PVRI President 2018/19

Chair: // Paul Hassoun

PVRI President 2018/19

JOHNS HOPKINS UNIVERSITY SCHOOL OF MEDICINE, USA

Official handover to:

PVRI President 2020/21

Werner Seeger

JUSTUS-LIEBIG-UNIVERSITY GIESSEN, GERMANY

PVRI Task Force meetings including the:

- Infections in Pulmonary Vascular Disease Task Force
  09:00 - 17:30
  Chair: // Ghazwan Butrous
  PVRI President Emeritus
  JOHNS HOPKINS UNIVERSITY SCHOOL OF MEDICINE, USA
  Held in room // Inka 3-4

- Exercise Task Force
  16:00 - 18:00
  Chair: // David Systrom
  BRIGHAM AND WOMEN’S HOSPITAL, USA
  Held in room // Nazca 1

- Imaging & Pulmonary Hypertension Task Force
  16:00 - 18:00
  Chairs: // David Kiely
  UNIVERSITY OF SHEFFIELD, UK
  // David Levin
  MAYO CLINIC, ROCHESTER, USA
  Held in room // Paracas 1
Scientific Programme

Thursday 30 January
Morning Session // Lecture Programme (08:15-12:30)
Held in room // Grand Salon 2 - 3

WELCOME
// Werner Seeger, PVRI President 2020/21
08:15 - 08:20

Plenary 1
Moderators:
// Luis Efrén Santos Martínez, Instituto Nacional de Salud, México
// Kurt Stenmark, University of Colorado, USA

Hypoxia, mitochondria and metabolism - a dynamic triangle?
08:20 - 09:55
Target audience: All

Objectives:
This session will provide current updates on molecular mechanisms underlying hypoxic signalling, cellular metabolism and mitochondrial alterations in PH and RV dysfunction. This session will also address potential therapeutic implications of targeting mitochondrial and metabolic alterations, with directions for future research and translational focus.

Physiological and mitochondrial features that lead to a successful acclimatization to hypoxia
08:20 - 08:37
// Jorge Soliz, University of Canada
Discussion
08:37 - 08:45

Metabolic mechanisms in PAH
08:45 - 09:02
// Samar Farha, Cleveland Clinic, USA
Discussion
09:02 - 09:10

ROS signalling in smoke-induced pulmonary hypertension and emphysema
09:10 - 09:27
// Natalia Sommer, Justus-Liebig University, Germany
Discussion
09:27 - 09:35

Best abstract: The mitochondrially located proteins p66shc and cyclophilin D are contributing to the regulation of the pulmonary vascular tone
09:35 - 09:47
// Claudia Fernandez Garcia, Justus-Liebig University, Germany
Discussion
09:47 - 09:55

BREAK
09:55 - 10:30

Plenary 2
Moderators:
// Roberto Accinelli, Universidad Peruana Cayetano Heredia, Peru
// Aaron Waxman, Brigham and Women’s Hospital, Harvard Medical School, USA

Lessons from high altitude for pulmonary hypertension
10:30 - 12:30
Target audience: All

Objectives:
Lessons from the naturally occurring hypoxic environment taking place at high altitude to reduce oxygenation at sea level, with special focus on the lung. Overall, humans are not designed to live at high altitudes and thus, evolution has come up with different strategies on how to adapt and reduce oxygenation. These mechanisms are different among the human population, e.g. South Americans adapt differently from the Himalayans. Accordingly, the pathologies and their differences are to be learned for PH in general.

Haemoglobin levels from low to high altitude in different ethnologies
10:30 - 10:47
// Max Gfodann, University of Zurich, Switzerland
Discussion
10:47 - 10:55

Chronic mountain sickness and PH
10:55 - 11:12
// Francisco Villafuerte, Universidad Peruana Cayetano Heredia, Peru
Discussion
11:12 - 11:20

The molecular biology of the hypoxic lung
11:20 - 11:37
// Heimo Mairbäurl, University of Heidelberg, Germany
Discussion
11:37 - 11:45

High altitude pulmonary oedema: Mechanisms and insight from MRI imaging
11:45 - 12:02
// Sue Hopkins, University of California San Diego, USA
Discussion
12:02 - 12:10

Best abstract: The right ventricular ejection fraction (RVEF) for heart gammagraphy in patients with chronic obstructive pulmonary disease (COPD) in a third level hospital in the height of Quito, Ecuador
12:10 - 12:22
// Rodrigo Hoyos Paladines, Carlos Andrade Marin Specialty Hospital, Ecuador
Discussion
12:22 - 12:30

LUNCH
12:30 - 13:30

Pulmonary Circulation Editorial Board meeting
 Held in room // Nazca 1 - 2
12:30 - 14:00
Chairs: // Jason Yuan, University of California, San Diego, USA // Nick Morrell, University of Cambridge, UK

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CME Credits
This event has been accredited by both the European Accreditation Council for Continuing Medical Education (EACCME) and the European Board for Accreditation in Pneumology (EBAP). Physicians may convert EACCME® credits into an equivalent number of AMA PRA Category 1 Credits™.
### SHEILA GLENNIS HAWORTH LECTURE
**Mechanistic links between iron deficiency and pulmonary arterial hypertension**
- **Keynote speaker**: Samira Lakhal-Littleton, UNIVERSITY OF OXFORD, UK
- **Moderator**: Max Gassmann, VETSUISSE - FACULTY UNIVERSITY OF ZURICH, SWITZERLAND

#### Pro-con debate session
**14:10 - 15:30**

<table>
<thead>
<tr>
<th>Pro</th>
<th>Optimised risk assessment, non-invasive imaging and CPET will substitute right heart catheterisation in PH</th>
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<tr>
<td>Con</td>
<td>Terrestrial intervention required for PH treatment</td>
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**Moderators:**
- Harm Jan Bogaard, UNIVERSITY OF GOTEBOURG, SWEDEN
- Valerie McLaughlin, UNIVERSITY OF MICHIGAN, USA

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<th>Pro</th>
<th>Raymond Benza, Temple University School of Medicine, USA</th>
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<td>Con</td>
<td>Aaron Waxman, Brigham and Women’s Hospital, Harvard Medical School, USA</td>
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<td>Pro rebuttal</td>
<td>Raymond Benza</td>
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<tr>
<td>Con rebuttal</td>
<td>Aaron Waxman</td>
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**TGFß signalling plays a crucial role in PH independent of BMPR2**

**Moderators:**
- Marie-José Goumans, LEIDEN UNIVERSITY MEDICAL CENTER, THE NETHERLANDS
- Martin Wilkins, Imperial College London, UK

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<td>Pro rebuttal</td>
<td>Brian Graham</td>
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<tr>
<td>Con rebuttal</td>
<td>Nick Morrell</td>
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#### Break
**15:30 - 16:00**

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**Plenary 3**
**Moderators:**
- Gérard Simonneau, HôPITAUX UNIVERSITAIRES PARIS-SUD, FRANCE
- Rogerio Souza, UNIVERSITY OF SAO PAULO, BRAZIL

**PVOD and PCH - orphan of the orphans, or just a common trait in some forms of PAH?**
**Target audience:** Clinicians, biologists, geneticists & pathologists

**Objectives:**
A comprehensive session to include different disciplines and provide a needed rescaling of the understanding of PVOD, after changes were made in the diagnostic classification at the World Symposium on PH in 2018. The session will cover what is known, what is new, and how scientific understanding, diagnostic approach and medical treatment of the disease can be optimised on consensus within the PH community.

**Pulmonary veno-occlusive disease or PAH with predominant venous remodelling:**
**The pathologist’s view**
- Peter Dorfmüller, University of Gießen and Marburg Lung Center, Germany

**Genetic and molecular mechanisms of pulmonary venous remodelling**
- Frédéric Perros, INSERM UMR_S999, University Paris-Saclay, France

**Relevance of the Apelin receptor in PH: PVOD, PAH, or both?**
- Patricia Thistlethwaite, University of California San Diego, USA

**Phenotype/genotype in PVOD**
- Florent Soubrier, Sorbonne Université, Paris, France

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**RUPERT SWIFT AWARD**

**Best abstract:** Rare variant association study of multiple pulmonary hypertension phenotypes using a Bayesian statistics framework
- Emilia Swietlik, UNIVERSITY OF CAMBRIDGE, UK

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### PVRI Annual General Meeting

**18:00 - 19:15**

**Welcome**

// Paul Hassoun, PVRI President 2018/19, Johns Hopkins University School of Medicine, USA

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<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tr>
<td>18:00</td>
<td>Welcome</td>
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<td>18:05</td>
<td>Overview of the year 2019</td>
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<td>18:20</td>
<td>PVRI Digital Clinic 12 patient cases</td>
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<td>18:35</td>
<td>The Dinosaur Trust sponsored Research Grant</td>
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<td>18:45</td>
<td>PVRI Research Grant</td>
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<td>18:50</td>
<td>PVRI goals 2020/21 &amp; Global Registry Initiative</td>
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**Welcome & Networking Reception**

Held in the // Foyer

19:15 - 21:00
Friday 31 January

Morning Session // Lecture Programme (08:00-13:00)

Held in room // Grand Salon 2 - 3

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**Plenary 4**

**Moderators:**
- Gabriel Díaz // Universidad Nacional de Colombia, Colombia
- Soni Savai-Pullam setti // Max-Planck-Institute for Heart and Lung Research, Germany

**PH in neonates and children development**

**Target audience:** All

**Objectives:**
- Interdependency between lung disease and PH from neonates to children - does this have impact on adult life? How to optimally treat newborns and children, and what are the trajectories for adult life?
- Lung vascular changes in bronchopulmonary dysplasia - causes, consequences and diagnostic possibilities
- Perivascular cells: The culprit in paediatric pulmonary hypertension and potential target for therapy
- Nitric oxide and other signalling mechanisms in the regulation of pulmonary vascular tone in neonates from low- and high-altitude species.

**08:00 - 08:17**

- Anne Hilgendorff // Ludwig-Maximilians-Universität München, Germany
- Robbert Rottier // Erasmus University Medical Center, The Netherlands

**08:17 - 08:25**

**Discussion**

**08:25 - 08:42**

- Victor Roberto Reyes // Facultad de Medicina, University of Chile, Chile

**08:42 - 08:50**

**Discussion**

**08:50 - 09:07**

- Sheila Glennis Haworth // Great Ormond Street Children's Hospital, London, UK

**09:07 - 09:15**

**Discussion**

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**Trajectory of PH in newborns: persistence in childhood, recurrence in adulthood**

**09:15 - 09:32**

- Sheila Glennis Haworth // Great Ormond Street Children's Hospital, London, UK

**09:32 - 09:40**

**Discussion**

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**BREAK**

**09:40 - 10:30**

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**STUART RICH LECTURE**

**Gene editing - ready for translation into clinical medicine**

**Keynote speaker:** // Mark Geraci // Indiana University, USA

**Moderator:** // Vinicio de Jesus Perez // Stanford University, USA

**08:00 - 10:00**

**3 minutes presentation plus 2 minutes discussion for each poster, mixed clinical plus basic**

**08:00 - 10:00**

**Paediatric & Congenital Heart Disease Task Force meeting**

**Held in room // Paracas 1**

**11:15 - 16:00**

**Chairs:**
- Maria Jesus del Cerro // Ramón y Cajal University Hospital, Spain
- Steven Abman // Children's Hospital, Colorado, USA
- Shahin Moledina // Great Ormond Street Hospital, UK

**Effect of exercise training on 6-minute walking distance in severe precapillary pulmonary hypertension - results from a European multicentre randomised controlled trial**

**11:10 - 11:13**

- Martin Johnston // Golden Jubilee National Hospital, Glasgow, UK

**Discussion**

**11:15 - 11:18**

**Inflammatory biomarker profiles at baseline and 1 year follow up in pulmonary arterial hypertension (PAH) and chronic thromboembolic pulmonary hypertension (CTEPH)**

**11:15 - 11:18**

- Thomas Koudstaal // Department of Pulmonary Medicine, The Netherlands

**Discussion**

**11:20 - 11:23**

**Pulmonary arterial hypertension in pregnancy: a systematic review of adverse outcomes in the modern era**

**11:20 - 11:23**

- Ting Ting Low // National University Heart Centre, Singapore

**Discussion**

**11:23 - 11:25**

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23 CME credits

24 CME credits

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21 20
Do plasma metabolomic profiles differentiate responders from non-responders to oral treprostinil? 11:25 - 11:28
Results from the FREEDOM phase 3 clinical development programme (Abstract ref: 43)
Christopher Rhodes IMPERIAL COLLEGE LONDON, UK
Discussion 11:28 - 11:30

Pulmonary arterial hypertension with below threshold pulmonary vascular resistance 11:30 - 11:33
Seshika Ratwatte CONCORD REPATRIATION AND GENERAL HOSPITAL, AUSTRALIA
Discussion 11:33 - 11:35

Treatment with oral treprostinil improves haemodynamics in participants with PAH 11:35 - 11:38
Jim White UNIVERSITY OF ROCHESTER MEDICAL CENTER, USA
Discussion 11:38 - 11:40

Moderated poster session 1 11:40 - 13:00
Held in room // Grand Salon 1
80 minutes
Moderators:

LIGHT LUNCH served during the moderated poster session 12:00 - 13:00

END OF DAY TWO SCIENTIFIC SESSIONS
Plenary 5

Moderators:
// Ardeschir Ghofrani \JUSTUS-LIEBIG-UNIVERSITY GIESSEN, GERMANY
// Bradley Maron \BRIGHAM AND WOMEN'S HOSPITAL, HARVARD MEDICAL SCHOOL, USA

Targeting growth suppressors in PH: current progress and therapeutic prospects
08:00 - 10:00

Target audience: All
Objectives:
Learning from cancer, paving the avenue to true "reverse remodelling" therapy. Different strategies to achieve one common goal, the restoration of normal lung vascular architecture.

FoxO re-activation and and beyond – the epigenetic treatment arsenal
08:00 - 08:17
// Soni Savai-Pullamsetti \MAX-PLANCK-INSTITUTE FOR HEART AND LUNG RESEARCH, GERMANY
Discussion
08:17 - 08:25

GATA6 deficiency as a molecular target for PAH
08:25 - 08:42
// Maria Trojanowska \BOSTON UNIVERSITY, USA
Discussion
08:42 - 08:50

TSC2: New molecular target for therapeutic intervention in PH
08:50 - 09:07
// Elena Goncharova \UNIVERSITY OF PITTSBURGH, USA
Discussion
09:07 - 09:15

Cyclin-dependent kinase inhibition as new treatment concept in PH
09:15 - 09:32
// Ralph Schermuly \UNIVERSITY OF GIESSEN AND MARBURG LUNG CENTER, GERMANY
Discussion
09:32 - 09:40

Best abstract: Survivin inhibition as a potential target for pulmonary arterial hypertension
09:40 - 09:52
// Maria Isabel Marquina Rodríguez \CENTRO DE INVESTIGACIÓN BIOMÉDICA EN RED DE ENFERMEDADES RESPIRATORIAS, SPAIN
Discussion
09:52 - 10:00

BREAK
10:00 - 10:30

Plenary 6

Moderators:
// Paul Corris \NEWCASTLE UNIVERSITY, UK
// Stuart Rich \NORTHERN IRELAND UNIVERSITY FEINBERG SCHOOL OF MEDICINE, USA

The global burden of PH - Time to engage with global health
10:30 - 12:20

Target audience: All
Objectives:
PH to be addressed from a global perspective. Engagement of the PVRI in global health organisations. The PVRI has a major focus on raising the profile of PH to a global audience as part of our strategy over next 5 years and we are engaged with the WHF, WHO, NCDA and the UN.

PH in Latin America
A) Management of the RELAHP II Registry
10:30 - 10:40
// Luis Efrén Santos Martínez \UNIVERSITY OF MÉXICO, MEXICO
Discussion
10:40 - 10:50
B) RELAHP II Registry. Preliminary data
10:50 - 11:00
// Ricardo Adrián Gómez Tejada \UNIVERSITY OF BUENOS AIRES, ARGENTINA
Discussion
11:00 - 11:10

Global health systems and policies for better pulmonary vascular health and outcomes
11:10 - 11:20
// Mark Huffman \NORTHERN IRELAND UNIVERSITY FEINBERG SCHOOL OF MEDICINE, USA
Discussion
11:20 - 11:30

Modelling the global burden of disease. Current progress in PH
11:30 - 11:47
// Sophia Emmons-Bell \INSTITUTE FOR HEALTH METRICS AND EVALUATION SEATTLE, USA
Discussion
11:47 - 11:57

Best abstract: Evidence of responders and non-responders to specific drugs for treatment of pulmonary arterial hypertension in Colombia: the experience of the "Colombian Network of Pulmonary Hypertension"
11:57 - 12:10
// Mauricio Orozco-Levi \CENTRO DE INVESTIGACIÓN BIOMÉDICA EN RED DE ENFERMEDADES RESPIRATORIAS, COLOMBIA
Discussion
12:10 - 12:20

LUNCH
12:20 - 13:30
Scientific Programme

Saturday 1 February

Afternoon Session // Lecture Programme (13:30-18:55) // Held in room // Grand Salon 2 - 3

Plenary 7

Moderators:
// Bradley Maron // Brigham and Women's Hospital, Harvard Medical School, USA
// Werner Seeger // Justus-Liebig-University Gießen, Germany

The right ventricle - forgotten no more 13:30 - 15:30

Target audience: Clinicians, radiologists, basic scientists

Objectives:
To discuss the current methods to assess the function of the right ventricle and its impact on prognosis in pulmonary hypertension. Furthermore, the session aims to cast light on current measures of the RV-PA-Unit and to critically reflect its clinical relevance in comparison to conventional parameters of RV function. Additionally, new and well-known therapeutic approaches of RV failure will be discussed.

Methods to assess RV contractility and diastolic stiffness. From gold-standard PV-loops to surrogates. 13:30 - 13:47
// Khodor Telci // University of Gießen and Marburg, Germany
Discussion 13:47 - 13:55

Right ventricular fibrosis and right ventricular function in pulmonary hypertension 13:55 - 14:12
// Gaurav Choudhary // Providence Medical Center, USA
Discussion 14:12 - 14:20

Oestrogens and RV failure in PAH 14:20 - 14:37
// Tim Lahm // Indiana University Medical Center, USA
Discussion 14:37 - 14:45

Right ventricular failure - new therapeutic avenue/approaches 14:45 - 15:02
// Rebecca Vanderpool // University of Arizona College of Medicine, USA
Discussion 15:02 - 15:10

Best abstract: Role of PARP1-PKM2/inflammation/oxidative DNA damage axis in the pathogenesis of right ventricular failure associated with pulmonary arterial hypertension 15:10 - 15:22
// Tsukasa Shimauchi // Quebec Heart and Lung Institute, Laval University, Canada
Discussion 15:22 - 15:30

BREAK 15:30 - 15:45

Rapid fire oral presentations - Basic 15:45 - 16:15
3 minutes presentation plus 2 minutes discussion for each poster; mixed clinical plus basic

Endothelial-induced GATA6 deficiency promotes deregulation of Yap/Taz, BMPRRII and SOD2 axis and vascular smooth muscle hyper-proliferation in PAH 15:45 - 15:48
// Marco Guazzi // IRCCS Policlinico San Donato, University of Milano, Italy
Discussion

Long noncoding RNA TJKRIL plays a role in pulmonary hypertension via the p53-mediated regulation of PDGFRß 15:50 - 15:53
// Chanil Valasaravaj // Max Planck Institute for Heart and Lung Research, Germany
Discussion 15:53 - 15:55

Protein quantitative trait loci inform genetic risk of pulmonary arterial hypertension and novel candidate pathogenic pathways 15:55 - 15:58
// Lars Harbaugh // Imperial College London, UK
Discussion 15:58 - 16:00

The impact of LOXL2 inhibition on pulmonary arterial hypertension 16:00 - 16:03
// Jochen Steppan // Johns Hopkins University, USA
Discussion 16:03 - 16:05

Involvement of secreted protein acidic and rich in cysteine in PASMC function in pulmonary hypertension 16:05 - 16:08
// Christine Velthuys // University of Gießen and Marburg Lung Center, Germany
Discussion 16:08 - 16:10

Circulating long non-coding RNA H19 as a novel biomarker for right ventricular failure associated with pulmonary arterial hypertension 16:10 - 16:13
// Junichi Omura // Quebec Heart and Lung Institute, Laval University, Canada
Discussion 16:13 - 16:15

Moderated poster session 2 16:15 - 17:15
Held in room // Grand Salon 1
60 minutes
Moderators:
// Gaurav Choudhary // Elena Goncharova // Brian Graham // Christophe Guignabert // Tim Lahm
// Bradley Maron // Nick Morrell // Vinicio de Jesus Perez // Kurt Steenmark

CME Credits
23 CME credits
24 CME credits

JScience 2019
BARCELONA 2019

The conference truly was one of the best I have been to in recent years, and I would definitely come again next year. So thank you - for the excellent science, helpful networking, and an interesting location too!

Olena Rudyk, UK

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Olena Rudyk, UK
This is a joint session with the ESC Working Group on Pulmonary Circulation and Right Ventricular Function

**PH and HFpEF - driving forces, ventricular interplay and therapeutic options**

**Target audience:** All

**Objectives:**
To discuss the current knowledge on the mechanisms involved in the development of pulmonary hypertension and their impact on prognosis in heart failure with preserved ejection fraction (HFpEF). Furthermore, the session will handle measures of the RV/PA unit in this context under resting conditions and during exercise, highlighting RV dysfunction even at early stages of HFpEF. Finally, the potential role of established PH targeted therapies, as well as new approaches to improve PH and RV function in HFpEF will be discussed, focusing on specific haemodynamic phenotypes.

**Driving forces of PH in heart failure with preserved ejection fraction - what can we learn from animal models?**
17:15 - 17:32
// Elena Goncharova UNIVERSITY OF PITTSBURGH, USA
Discussion
17:32 - 17:40

**The right ventricle in HFpEF – RV/PA coupling at rest and during exercise.**
18:05 - 18:22
// Ryan Tedford MEDICAL UNIVERSITY OF SOUTH CAROLINA, USA
Discussion
18:22 - 18:30

**Is there a role for PH targeted therapies in HFpEF? Haemodynamic phenotypes and therapeutic responses**
18:30 - 18:47
// Stephan Rosenkranz UNIVERSITY OF COLOGNE, GERMANY
Discussion
18:47 - 18:55

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**PVRI Gala Dinner with salsa music**
Meet at 19:40 in the hotel lobby
(All welcome, including partners & guests)
Buy your ticket at the Reception Desk
Sunday 2 February

Morning Session // Lecture Programme (08:00-13:30) Held in room // Grand Salon 2-3

Plenary 9

Moderators:
// Stephen Chan UNIVERSITY OF PITTSBURGH MEDICAL CENTER, USA
// Gregory Roth UNIVERSITY OF WASHINGTON, USA
// Paul Corris UNIVERSITY OF NEWCASTLE, UK

Imaging in PH - from rodents to men - new insights from new technologies? 08:40 - 10:40

Target audience: Basic scientists, clinicians, physiologists, radiologists.

Objectives:
To discuss the methods and approaches for non-invasive evaluation of the right ventricular and lung function/morphology. This includes pre-clinical, translational, and clinical research on novel imaging methodologies, imaging biomarkers and probes, as well as new molecular imaging applications in diagnostics and prognosis of experimental and human pulmonary hypertension. The session will provide a platform for knowledge exchange covering basic sciences, translational aspects, as well as clinical applications.

Imaging biomarkers in experimental PH
// Babirye K. KOJONAZAROV UNIVERSITY HOSPITAL OF GIESEN AND MARBURG, GERMANY
08:40 - 08:57
Discussion 08:57 - 09:05

Artificial intelligence to make more of clinical technologies for cardiac imaging
// Declan O’Regan MRC LONDON INSTITUTE OF MEDICAL SCIENCES, IMPERIAL COLLEGE LONDON, UK
09:05 - 09:22
Discussion 09:22 - 09:30

Right ventricle and lung 18FFLT and 18FDG PET in experimental and human PH
// Lan Zhao IMPERIAL COLLEGE LONDON, UK
09:30 - 09:47
Discussion 09:47 - 09:55

 Ventricular mass as a prognostic imaging biomarker in incident PAH
// Paul Hartouzi JOHN HOPKINS UNIVERSITY SCHOOL OF MEDICINE, USA
09:55 - 10:12
Discussion 10:12 - 10:20

Best abstract: Perfusion imaging distinguishes exercise pulmonary arterial hypertension at rest
// Puja Kulkarni MASSACHUSETTS GENERAL HOSPITAL AND HARVARD MEDICAL SCHOOL, USA
(abstract ref: 295) 10:20 - 10:32
Discussion 10:32 - 10:40

BREAKE 10:40 - 11:10


Plenary 10

Moderators:
// Sébastien Bonnet UNIVERSITY OF Laval, CANADA // James Klinger BROWN UNIVERSITY, USA

RNA therapeutics in PH - fact, future or fantasy? 11:10 - 13:10

Target audience: All

Objectives:
Advances in RNA-sequencing techniques have led to the discovery of thousands of non-coding transcripts with unknown functions. There are several types of non-coding linear RNAs, such as microRNAs (miRNA) and long non-coding RNAs (lncRNA), as well as circular RNAs (circRNA) consisting of a closed continuous loop. Among these types, IncRNAs have emerged as critical regulators of gene expression in both normal and diseased states. This session will highlight current knowledge of the function of IncRNAs in pulmonary hypertension and right ventricle (RV) hypertrophy and failure. This session will also address potential therapeutic implications and the challenges of IncRNA research, with directions for future research and translational focus.

Right ventricular long non-coding RNA expression in human heart failure
// Anna Hemmen UNIVERSITY OF UNIVERSITY MEDICAL CENTER, GERMANY
11:10 - 11:27
Discussion 11:27 - 11:35

Role of LnRNA in pulmonary hypertension and RV failure
// Sébastien Bonnet UNIVERSITY OF Laval, CANADA
11:35 - 11:52
Discussion 11:52 - 12:00

RNA-mediated regulation of BMPR2 in heritable and idiopathic pulmonary arterial hypertension
// James West UNIVERSITY OF UNIVERSITY MEDICAL CENTER, USA
12:00 - 12:17
Discussion 12:17 - 12:25

Network analysis of the expanding RNA landscape in PH
// Stephen Chaffery UNIVERSITY OF BOSTON MEDICAL CENTER, USA
12:25 - 12:42
Discussion 12:42 - 12:50

Best abstract: Inhaled AAV.S1.S3a gene therapy restores BMPR2 expression and attenuates pulmonary arterial hypertension
// Sébastien Bonnet UNIVERSITY OF Laval, CANADA
12:50 - 13:02
Discussion 13:02 - 13:10

CLOSING REMARKS
// Werner Seeger PVRI PRESIDENT 2020-21

END OF CONGRESS

PVRI Global Health Working Group meeting* Held in room // Inka 1
Chairs: // Stuart Rich NORTHWESTERN UNIVERSITY FEINBERG SCHOOL OF MEDICINE, USA // Paul Corris UNIVERSITY OF NEWCASTLE, UK
13:00 - 15:00

PVRI Digital Clinic Working Group meeting* Held in room // Inka 2
Chairs: // Martin Johnson DIGITAL CLINIC CONTENT MANAGER, UNIVERSITY OF GLOUCESTERSHIRE, UK // Colin Church DIGITAL CLINIC CONTENT MANAGER, UNIVERSITY OF GLOUCESTERSHIRE, UK // Aaron Shefras PROJECT MANAGER, PVRI, UK
13:00 - 15:00

* This is a closed meeting
Gala Dinner

Please join us at our Gala Dinner on Saturday 1 February 2020 at:
Country Club Lima Hotel,
Calle Los Eucaliptos 590, San Isidro 15076, Lima.
Tickets are available at the reception desk.
Meet in the hotel lobby at 19:40.

“Hearty congrats for the excellent conference. It was rich in scientific contents and words of wisdom. The best so far that I have attended. And a nice venue too”.

Shine Kumar, India
BARCELONA 2019
Congratulations on the achievements of all our members throughout 2019...

Our Gala Dinner is always a wonderful occasion where we celebrate the achievements of our members.

This year, we will present the following awards:

- PVRI Lifetime Achievement Award 2019
- PVRI Certificate of Recognition 2019
- Rupert Swift Award 2019
- The Butrous Foundation Young Investigator Award 2019

I invite you all to attend our Gala Dinner. It promises to be a lively evening!

We congratulate all of our winners and are extremely proud of their achievements.

Butrous Foundation Young Investigator Award

The Butrous Foundation Young Investigator Award is presented to a young investigator at the annual PVRI World Congress.

The Butrous Foundation is a private foundation established in 2006, which aims to motivate young people to pursue scientific careers by enhancing scientific creativity and communication skills. It also provides a platform for young people all over the world to participate in scientific advancements and to encourage them to express their ideas freely and creatively.

The Award provides $500 to one young investigator and an additional $500 to publish their research in Pulmonary Circulation, subject to the normal peer-review process.

For further information and to find the criteria for eligibility, please visit the website: [www.butrousfoundation.com](http://www.butrousfoundation.com)
“Best basic science lectures I’ve ever heard at a PH meeting”.
Stuart Rich, USA
BARCELONA 2019

Meet our Speakers, Chairs & Contributors

An inquisitive Alpaca at dawn
Our Speakers, Chairs & Contributors

LISTED IN ALPHABETICAL ORDER

Roberto Accinelli
• Universidad Peruana Cayetano Heredia, Peru

Ricardo Adrián Gómez Tejada
• University of Buenos Aires, Argentina

Raymond Benza
• Allegheny General Hospital, USA

Horn Jan Bogaard
• VU University Medical Center, The Netherlands

Sébastien Bonnet
• Pulmonary Hypertension Research Group, Canadian Research Chair in Vascular Diseases, Canada

Stephen Chan
• University of Pittsburgh, USA

Gauree Choudhary
• Brown University, USA

Paul Cotts
• Newcastle University, UK

Vincente de Jesus Perez
• Stanford University, USA

Gabriel Diaz
• Universidad Nacional de Colombia, Colombia

Peter Dormöller
• Université Paris-Sud, France

Luís Efrén Santos-Martinez
• National Institute of Cardiology, Mexico

George Glannoulias
• Aretaia University General Hospital Aristotelis University of Thessaloniki, Greece

Sophia Emmons-Bell
• Institute for Health Metrics & Evaluation, University of Washington, USA

Sameer Farha
• Cleveland Clinic, USA

Max Geissmann
• Venosure, Faculty University of Zurich, Switzerland

Mark Geraci
• Indiana University USA

Andresch/Chodrani
• Justus-Liebig University of Giessen, Germany

Mark Gladwin
• University of Pittsburgh, USA

Elena Gontcharova
• Division of Pulmonary, Allergy and Critical Care Medicine, Pittsburgh, USA

Mario-Jose Goutmane
• Leiden University, The Netherlands

Brian Graham
• University of Colorado Denver School of Medicine, USA

Eckhard Grunzig
• University of Heidelberg, Germany

Maria Guazzelli
• University of Milan, Italy

Mark Huffman
• Northwestern University Feinberg School of Medicine, USA

Christophe Guipponi
• Research Director (Associate professor) at INSERM UMR_S 999, Université Paris-Saclay, France

Paul Hassoun
• Johns Hopkins University School of Medicine, USA

Sheila Glennis Haworth CBE
• University College London, UK

Ansa Hennes
• Vanderbilt University School of Medicine, USA

Anne Hilgendorff
• Ludwig Maximilians Universität, Germany

Susan Hopkins
• University of California San Diego, USA

Samira Lakhal-Littleton
• University of Oxford, UK

Heimo Maibäurl
• University of Heidelberg, Germany

Tim Lahm
• Indiana University School of Medicine, USA

Bakhydok Kojonazarov
• Justus-Liebig University Giessen, Germany

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• University of Oxford, UK

Heimo Maibäurl
• University of Heidelberg, Germany

Tim Lahm
• Indiana University School of Medicine, USA

Bakhydok Kojonazarov
• Justus-Liebig University Giessen, Germany
Our Oral Abstract Presenters

LISTED IN ALPHABETICAL ORDER

Fakhrul Ahsan
• Texas Tech University Health Sciences Center, USA

Martin Johnson
• Golden Jubilee National Hospital, Glasgow, UK

Mauricio Orozco-Levi
• Fundación Cardiovascular de Colombia, Hospital Internacional de Colombia, Colombia

Puja Kohli
• Massachusetts General Hospital and Harvard Medical School, USA

Shikha Ramachandran
• Condon/Pharmacy and General Hospital, Australia

Malik Bisserier
• Cardiovascular Research Center, Icahn School of Medicine at Mount Sinai, USA

Tara Kheirandish
• Erasmus MC, The Netherlands

Martin Johnson
• Golden Jubilee National Hospital, Glasgow, UK

Papa Kehi
• Massachusetts General Hospital and Harvard Medical School, USA

Ting Ting Lou
• National University Heart Centre, Singapore

Malika Razvi
• Center for Ischemic Cardiovascular Research, Mount Sinai Medical Center, USA

Mareike Gierhardt
• Max Planck Heart and Lung Laboratory, The Biomedicine Research Institute of Buenos Aires (BlaBa - CDNCDT - Partner Institute of the Max Planck Society), Argentina

Maria Isabel Marquina Rodriguez
• Centro de Investigación Biomédica en Red de Enfermedades Respiratorias

Tatania Kadriyushova
• University of Pittsburgh, USA

Juneshi Shimatsu
• Quebec Heart and Lung Institute, Laval University, Canada

Rodrigo Hoyos Paladines
• Carlos Andrade Marin Specialty Hospital, Ecuador

Christopher Rhodes
• Imperial College London, UK

Mauricio Orozco-Levi
• Fundación Cardiovascular de Colombia, Hospital Internacional de Colombia, Colombia

Tig Ting Lou
• National University Heart Centre, Singapore

Takuma Shimatsu
• Quebec Heart and Lung Institute, Laval University, Canada

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Christopher Rhodes
• Imperial College London, UK

Chanil Valsaraj
• Max Planck Institute for Heart and Lung research, Germany

Christine Veith
• Universities of Giessen and Marburg lung Center, Germany

Rodrigo Hoyos Paladines
• Carlos Andrade Marin Specialty Hospital, Ecuador

Seshika Ratwatte
• Concord/Pharmacy and General Hospital, Australia

Emilia Swietlik
• University of Cambridge, UK

Jochen Steppan
• Johns Hopkins University, USA

Jim White
• University of Rochester Medical Center, USA

Mareike Gierhardt
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Jim White
• University of Rochester Medical Center, USA
The second phase of our learning initiative is now complete. The course includes:

- 12 fully interactive patient cases
- Live quarterly webinars
- Improved learning library
- Updated therapies and learning materials

We are grateful to the continued support from our funding partners, MSD and GSK.

Sign in and try the course pvrinstitute.org/en/e-learning

Your next patient is waiting.

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The second scientific meeting of the International Consortium for Genetic Studies in PAH (PAH-ICON http://www.pahicon.com), sponsored by the PVRI, will immediately follow the PVRI 14th Annual World Congress. The meeting will include presentations and abstracts from researchers in the field of PAH genetics, and will provide an opportunity for collaborative networking and participating in future international collaborations in this rapidly evolving field.

Following on immediately after the PVRI Annual World Congress

Martin Johnson
Digital Clinic Content Manager
UNIVERSITY OF GLASGOW, UK

Colin Church
Digital Clinic Content Manager
UNIVERSITY OF GLASGOW, UK

Aaron Shefras
Project Manager
PVRI, UK

STAY IN LIMA
The official journal of the PVRI, Pulmonary Circulation is a leading forum for communication in the fields of pulmonary circulation and pulmonary vascular disease.

With a focus on translational science, the journal connects researchers and physicians in all parts of the world. An Open Access journal, articles are freely available to read immediately on publication. The journal’s goal is to advance our understanding of physiology and disease mechanisms pertaining to the pulmonary circulation and right heart, and to become the journal of choice for researchers in this field of science.

The Editors welcome article submissions including clinical and basic research in humans and animals, randomised controlled trials, intervention studies, and outcome studies. Articles published in Pulmonary Circulation will make a major impact not only on future research but also on improvement of health outcomes in our field.

Why publish in Pulmonary Circulation?
• Fast turnaround times.
• Articles posted online within 48 hours of acceptance and deposited in PubMed.
• 20-day target from submission to first decision.
• Immediate dissemination of articles to 6,000 PVRI members and affiliates, the global population of leading scientists and physicians studying the pulmonary circulation and pulmonary vascular disease.
• Article-level metrics for real-time updates on when your article has been read, cited or shared.
• Articles published Open Access allowing immediate access to all readers.
• Impact Factor 2.075.
“Today's work...

The Uros Islands on Lake Titicaca

...tomorrow's possibility.”

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www.pvrinstitute.org

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