The European Society for Vascular Surgery

4th Spring Meeting

UCL Institute of Child Health, London, UK

13th – 14th May 2016

PROGRAMME and ABSTRACTS 2016
Welcome to the 4th ESVS Spring Meeting in London in 2016!

Thank you for joining us for the 4th ESVS Spring meeting. Last Spring, we came together in Frankfurt for 2 days of lively discussions on leading research in vascular biology, novel materials and innovative devices covering all aspects of vascular disease. This year, we continue our focus on translational vascular research with 5 scientific sessions covering molecular and cellular biology of vascular diseases, vascular imaging, vascular modelling, biomaterials and cardiovascular device. There is also a dedicated poster session and authors of the 5 best posters will be invited to give short oral presentations of their work on Saturday in competition for the poster prize. Thank you to everyone who has submitted their work to the meeting. We are also excited to welcome our keynote speakers who will update us on their latest work, and given the increasing importance cross-disciplinary projects, we have also asked Tom Schmitz-Rixen to give us his views on the challenges of cross-disciplinary collaborations. The networking dinner has always been a fun opportunity to learn more about each other’s work and develop and consolidate collaborations: please join us for this. Thank you for your support and input. We hope you will enjoy the meeting.

Janice Tsui, George Hamilton, Thomas Schmitz-Rixen, Jaap Hamming, Sebastian Debus
**Programme Overview**

Friday, 13th May 2016

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<td>10:45</td>
<td>Opening Comments</td>
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<td>Miss Janice Tsui, Local Organising Committee</td>
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<td>Prof Mark Emberton, Dean, Faculty of Medical Sciences, UCL</td>
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<td>11:00</td>
<td>Keynote lecture:</td>
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<td>Vascular Aging: The role of non-coding RNA</td>
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<td>Dr Reiner Boon, Institute of Cardiovascular Regeneration, Goethe University Frankfurt/M, Germany</td>
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<td>11:25-12:55</td>
<td>Oral Session 1: Molecular and Cellular Biology of Vascular Diseases</td>
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<td>12:55 - 13:45</td>
<td>Lunch</td>
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<td>Multi-scale modelling to understand atherosclerosis and calcification locations: comparison with in-vivo data</td>
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<td>Dr Vanessa Diaz, Department of Mechanical Engineering, University College London, UK</td>
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<td>14:10 - 15:10</td>
<td>Oral Session 2: Vascular Imaging</td>
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<td>15:10 - 15:40</td>
<td>Coffee break</td>
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<td>15:40-15:55</td>
<td>Invited talk:</td>
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<td>Challenges of cross-disciplinary research</td>
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<td></td>
<td>Prof Thomas Schmitz-Rixen, Department of Vascular &amp; Endovascular Surgery, Goethe-University Hospital, Frankfurt, Germany</td>
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<td>15:55 - 17:15</td>
<td>Oral Session 3: Vascular Modelling</td>
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17:15 – 19:00  Poster Session

20:00  Networking Dinner

Saturday, 14th May 2016

08:30  Keynote lecture:

*Venous Stents – Design Optimization for the Clinical Challenge*

Dr Stephen Kao, Vice President of R&D, Veniti, Inc.

08:55 – 10:05  Oral session 4: Biomaterials

10:05-10:20  Coffee break

10:20  Keynote lecture:

*Molecular Aspects of Vascular Remodelling*

Prof Paul Quax, Einthoven Laboratory for Experimental Vascular Medicine, LUMC, the Netherlands

10:45-11:25  Poster prize session

11:25-11:35  Coffee break

11:40  Keynote lecture *and Introduction to ISACB*

*Human Mesenchymal Stem Cell-Based Tissue Engineered Vascular Grafts*

Prof David A. Vorp, University of Pittsburgh, USA

12:00 -13:20:  Oral Session 5: Cardiovascular Devices

13:20  Closing Remarks

Prof. T’Schmitz-Rixen
**Full Programme**

**Friday, 13th May 2016**

**10:45**  
Opening Comments  
Miss Janice Tsui, Local Organising Committee  
Prof Mark Emberton, Dean, Faculty of Medical Sciences, UCL

**11:00**  
Keynote lecture:  
*Vascular Aging: The role of non-coding RNA*  
Dr Reiner Boon, Institute of Cardiovascular Regeneration, Goethe University Frankfurt/M, Germany

**11:25-12:55**  
Oral Session 1: Molecular and Cellular Biology of Vascular Diseases  
Chairs: Dr Reiner Boon, Frankfurt, Germany & Dr Markella Ponticos, London, UK

11:25  
Taisiya Bezhaeva, The Netherlands  
Opposing effects of TLR4 homologue RP105 on VSMC proliferation and macrophage polarization in a murine model of arteriovenous fistula failure

11:35  
Luke Brewster, USA  
Impact of Aging on Murine Elastic and Muscular Arteries

11:45  
Charlotte Lawson, UK  
Effect of diabetes on wound healing and circulating microvesicles in an in vivo ischaemic wound model

11:55  
Alexander Götze, Germany  
Higher concentrations of IL10 improve hind limb reperfusion recovery in mice after femoral artery ligation
12:05   Rob de Jong, The Netherlands
Inhibition of the 14q32 microRNA-495 reduces lesion formation, intimal hyperplasia and plasma cholesterol levels in mouse models for post-interventional restenosis and atherosclerosis

12:15   Kerstin Troidl, Germany
Contribution of smooth muscle cell-derived and endothelial cell-derived miRNAs during vascular remodeling

12:25   Muholan Kanapathy, UK
Connexin as a biomarker for venous ulceration

12:35   Nina Mzhavanadze, Russia
Long-term effects and pharmacokinetic studies of naked plasmid DNA encoding vascular endothelial growth factor isoform VEGF165 transfer in patients with atherosclerotic peripheral arterial disease

12:55 - 13:45   Lunch
13:45  **Keynote lecture:**

*Muti-scale modelling to understand atherosclerosis and calcification locations: comparison with in-vivo data*

Dr Vanessa Diaz, Department of Mechanical Engineering, University College London, UK

14:10 – 15:10  **Oral Session 2: Vascular Imaging**

Chairs: Prof. Sebastian Debus, Hamburg, Germany & Prof. Sebastien Ourselin, London, UK

14:10      Ulrich Rother, Germany
Immediate changes of tissue perfusion during tibial angioplasty – measurements with respect to angiosomes

14:20      Craig Goergen, USA
Ultrasound and Magnetic Resonance Imaging of Murine Abdominal Aortic Aneurysms

14:30      Alexander Rolls, UK
A Comparison of Image- versus Hardware-based Tracking Technologies in 2D-3D Fusion in Aortic Endografting

14:40      Wojciech Derwich, Germany
Kinematic evaluation of infrarenal aortic aneurysm instability using 4D ultrasound

14:50      Inez Torres, Brazil
Simulator for training in endovascular infra-renal aneurysm repair: the use of 3D printers

15:00      Steve Greenwald, UK
Non-contact measurement of carotid artery wall movement for diagnosis of vascular disease

15:10 – 15:40  **Coffee break**
15:40-15:55 Invited talk:

**Challenges of cross-disciplinary research**

Prof Thomas Schmitz-Rixen, Department of Vascular & Endovascular Surgery, Goethe-University Hospital, Frankfurt, Germany


Chairs: Dr Vanessa Diaz, London, UK & Mr Daryll Baker, London, UK

15:55 Jacob Salmon, UK
Physiological vortices in the sinuses of Valsalva: an in vitro approach for bio-prosthetic valves

16:05 Bahaa Nasr, France
Characterization of the physiological motion of the aortic arch and the supra-aortic vessels.

16:15 Obiekezie Agu, UK
Patient-specific Computational modelling of Wall Motion in Aortic Dissection using Fluid-Structural Interaction

16:25 Benjamin Obukofe, UK
Prognostic Risk Factors Underlying Abdominal Aortic Aneurysm (AAA) Growth

16:35 Andreas Wittek, Germany
A Method for Virtual Hypertonic Stress Tests of AAA Using Patient-Individual Finite Element-Analyses
16:45  Benjamin Obukofe, UK
A Genetic Risk Score-Based Nomogram to Predict Abdominal Aortic Aneurysm (AAA) in the Caucasian European Population

16:55  Smiljana Djorovic, Serbia
A three-dimensional computational analysis of blood flow in patient-specific aortic stent graft

17:05  Cunnane Connor, Ireland
A Preliminary Study to Determine If Arteriovenous Fistula Configuration Generates Helical Flow

**17:15 – 19:00  Poster Session**

1.  Gary Bowlin, USA
    A New Perspective on the Neutrophil and Its Expanding Role in the Innate Immune Response to Biodegradable Vascular Graft

2.  Debra Chong, UK
    Engineering Vascular Graft Nanopit Surface Topography: Effects on Endothelial Cell Adherence

3.  Hendrik Van Damme, Belgium
    Late Fate of cryopreserved arterial Allografts

4.  Timothy Pennel, South Africa
    Transmural capillary ingrowth is essential for mid-graft healing

5.  Felix Ruben, Argentina
    Autologous Dermo epidermal device (ADED) produced by tissue engineering

6.  Florian Stefanov, Ireland
    Primary versus secondary intervention evaluation for twelve aortic type B dissections managed with the streamliner multilayer flow modulator

7.  Ihara Tsutomu, Japan
Postoperative changes in the diameter of the distal landing zone after EVAR introduction and objectives

8. Gagandeep Grover, UK
Cerebral Embolic Protection to in Thoracic Endovascular Aortic Repair (TEVAR) – A Pilot Study

9. Harri Hakovirta, Finland
Cardiovascular Risk Factors Differ in Inflammation Pathology in Patients with Clinically Symptomatic Lower Limb Atherosclerosis

10. Eoghan Cunnane, Ireland
The Mechanical, Compositional and Morphological Characterisation of Femoral Atherosclerotic Plaque for the Continued Improvement of Endovascular Treatment

11. Florian Simon, Germany
Time dependency of H2S-induced organ protection during long-term resuscitated porcine haemorrhage

12. Konstantinos Papoutsis, Greece
The role of relaxin in vascular diseases: early results

13. Bodnar Petro, Ukraine
Assessment of indicators endothelial dysfunction in pathogenesis post-thrombotic syndrome

14. Zuzanna Rowinska, Germany
The role of MMP2 in development of aneurysm in combination with the transplantation model

15. Danila Kozhevnikov, Russia
Comparative image of pig aorta and human ruptured abdominal aorta by new high resolution x-ray microtomography

16. Benjamin Obukofe, UK
Methylenetetrahydrofolate Reductase C677T (MTHFR C667T) Genetic Polymorphism is a Prognostic Risk Factor for Abdominal Aortic Aneurysm (AAA)
17. Benjamin Obukofe, UK
   Mechanism of interaction of angiotensin converting enzyme insertion-deletion polymorphism with methylene tetrahydrofolate reductase C677T genetic polymorphisms in the pathogenesis of abdominal aortic aneurysms
18. Christian Gasser, Sweden
   Local parameters that influence the local growth of abdominal aortic aneurysms
19. Stephanie Tomee, The Netherlands
   How does it feel to have an abdominal aortic aneurysm – a patient-centered view
20. Meritxell Davins, Spain
   Use of telemedicine to help control of peripheral arterial disease
21. Ike Okonji, UK
   The use of CT imaging to identify the high risk carotid plaque
22. Pragash Kamalathevan, UK
   Plaque ulceration is associated with symptomatic carotid artery disease
23. Susanne Regus, Germany
   Timing of first AVFs cannulation in children on hemodialysis
24. Susanne Regus, Germany
   MRI to investigate iliac artery wall thickness in triathletes

20:00  Networking Dinner
Saturday, 14th May 2016

08:30   **Keynote lecture:**

*Venous Stents – Design Optimization for the Clinical Challenge*

Dr Stephen Kao, Vice President of R&D, Veniti, Inc.

08:55 – 10:05   **Oral session 4: Biomaterials**

Chairs: Dr Stephen Kao, Veniti & Dr Wenhui Song, London, UK

08:55   Jun Hong Pang, UK
Development of Pre-polymer Coatings with Pro-endothelialisation Potential for Cardiovascular Devices

09:05   Lazarenko Gleb, Ukraine
Modifikation of the stents surface by treatment with autoalbumin for prevention of the body reaction

09:15   Junjie Zhao, UK
Nano-surface Patterned Coating Promotes in-situ Endothelization for Stents

09:25   Debra Chong, UK
Nanotopographical graft surface modulation to promote endothelialisation may promote calcification by directing mesenchymal stem cells to an osteogenic lineage

09:35   Yasmin Farhatnia, UK
Development of Pediatric covered stent using nanocomposite material
09:45    Allison Fetz, USA
Electrospun Vascular Graft Architecture and Composition Regulates Neutrophil NETosis In Vitro: A Potential Predictor of Success or Failure

09:55    Popov Gury, Russia
Is it possible to create readily available tissue-engineered vascular grafts without using cells?

10:05-10:20    Coffee break

10:20    Keynote lecture:
*Molecular Aspects of Vascular Remodelling*
Prof Paul Quax, Einthoven Laboratory for Experimental Vascular Medicine, LUMC, The Netherlands

10:45-11:25    Poster prize session
Chairs: Prof Paul Quax, The Netherlands & Dr Brian Cousins, UK

11:25-11:35    Coffee break

11:40    Keynote lecture and Introduction to ISACB
*Human Mesenchymal Stem Cell-Based Tissue Engineered Vascular Grafts*
Prof David A. Vorp, University of Pittsburgh, USA

12:00 -13:20:    Oral Session 5: Cardiovascular Devices
Chairs: Prof. David Vorp, President of ISACB, USA & Prof. Luke Brewster, USA

12:00    Michael Gawenda, Germany
From the work bench to the human body - Influence of 3-Dimensional Aortic model on Case Planning for FEVAR

12:10    Marco Horn, Germany
3-D Modeling of the Abdominal Aorta for Experimental Endovascular Navigation
12:20    Pierre-Jean Cottinet, France
Inkjet printing based electroactive polymer for steerable and haptic feedback of guide wire

12:30    Selim Bozkurt, UK
Development and Hydrodynamic Assessment of a Novel Transcatheter Mitral Valve

12:40    Mital Desai, UK
Mechanical profile of a thoracic endograft developed using POSS-PCU and shape memory alloy

12:50    Sebastian Debus, Hamburg, Germany
The Hamburg Hybrid Graft – a technical feasibility study for thoracoabdominal repair in pigs

13:00    Sabine Wipper, Germany
Complete percutaneous transapical instrumentation for single-sidebranch arch endograft using a percutaneous closure device in pigs

13:10    Rob Krams, UK
Mechanosensitive signalling pathways adapt during TCFA formation

13:20    Closing Remarks
Prof. T Schmitz-Rixen