



10th Biennial Heart Valve Biology and Tissue Engineering Meeting

Preliminary Programme

Dates: 17th to 19th September 2025

Venue: The Royal Society, 6-9 Carlton House, London, UK

Day 1 – Wednesday 17th September 2025

- 08:30-9:00 Registration
- 09:00-9:05 Welcome Address: Magdi Yacoub and Ajit Yoganathan

Session Topic: Epidemiology of Heart Valve Disease

- 09:05-09:25 C1 **Keynote Lecture: The Impact of Heart Valve Disease on Patient Lives, Economy and Society: A Global Perspective**
Hanneke Takkenberg
- 09:25-09:40 C2 **Mitral Valve Prolapse and Arrhythmic Sudden Death**
Gaetano Thiene
- 09:40-09:55 C3 **Rationale and Need for Cardio-Obstetric Care Units**
Susy Kotit, Nagwa Ibrahim, Soha Heikal, Magdi Yacoub
- 09:55-10:10 C4 **The Epidemiology of Degenerative Mitral Valve Disease: Chicken and Egg, the Old Conundrum**
Francis Wells
- 10:10-10:30 Coffee Break

Session Topic: Developmental Biology of Heart Valves

- 10:30-10:50 C5 **Keynote Lecture: Hemodynamic Disruption and Valve Defects**
Jonathan Butcher



- 10:50–11:05 C6 **Generation of Valvular Interstitial Cells from Human Pluripotent Stem Cells**
Amine Mazine
- 11:05–11:20 C7 **Spatial Variations in Shear Stress Activate *klf2a*-*snai1b* Signaling for Bicuspid to Multicuspid Valve Formation**
Jing Wang, Aaron L. Brown, Charlie Z. Zheng, Alexander D. Kaiser, Tomohiro Yokota, Seul-Ki Park, Alison L. Marsden, Tzung K. Hsiai
- 11:20–11:35 C8 **The AV Conduction System in Bicuspid Aortic Valve (BAV)**
Gaetano Thiene, Chiara Fraccaro

Session Topic: Matrix Biology Relevant to Heart Valves

- 11:35–11:55 C9 **Keynote Lecture: Heart Valve Glycomechanobiology**
Jane Grande-Allen
- 11:55–12:10 C10 **Hyalectan Remodeling Contributes to Aortic Stenosis: Insights from Proteomics**
Siqi Yin, Ursula Mayr, Javier Barallobre-Barreiro, Elisa Duregotti, Anna Barton, Rong Bing, Dyana Markose, Xiaoke Yin, Wen-Yu Lin, Bhawana Singh, Marika Fava, Lukas Schmidt, Ferheen Baig, Norman Catibog, Ajay Shah, Konstantinos Theofilatos, Christian Hengstenberg, Tamás Radovits, Béla Merkely, Neil Henderson, Marc Dweck, Manuel Mayr
- 12:10–12:25 C11 **Bio-Hybrid Cardiac Patches with Sustained Losartan Delivery: A Strategy Against Left Ventricular Remodeling**
Melika Malekhosseini
- 12:25–12:40 C12 **A Computational Fluid Dynamics (CFD) Analysis to Optimize Size and Shape Pattern for Endothelial Cell Growth**
Enrica Romano, Nunzio Cancilla, Federica Cosentino, Marta Baccarella, Michele Ciofalo, William Richard Wagner, Giorgio Domenico Maria Micale, Alessandro Tamburini, Antonio D'Amore
- 12:40–13:35 **Lunch**



Session Topic: Mechanobiology

- 13:35–13:55 C13 **Keynote Lecture: The mechanobiology of calcific aortic valve disease – Insights from benchtop microphysiological models**
Kartik Balachandran
- 13:55–14:10 C14 **Studying Cardiovascular Mechanobiology in Development and Disease with Zebrafish**
Huseyin C. Yalcin
- 14:10–14:25 C15 **Cell-type Specific GTPase Regulation of Aortic Valve Homeostasis and CAVD Progression**
G. Janani, Kenny Nguyen, Katherine Driscoll, Jonathan Butcher
- 14:25–14:40 C16 **Mechanically Activated *snai1b* Coordinates the Initiation of Myocardial Delamination for Trabeculation**
Jing Wang, Aaron L. Brown, Seul-Ki Park, Charlie Z. Zheng, Adam Langenbacher, Enbo Zhu, Ryan O'Donnell, Peng Zhao, Jeffrey Hsu, Jiandong Liu, Jau-Nian Chen, Tomohiro Yokota, Alison L. Marsden, Tzung K. Hsiai
- 14:40–14:55 C17 **Comparative Analysis of the Endothelial Glycocalyx in Aortic Valve and Vascular Endothelial Cells Under Distinct Shear Stress Conditions**
Eze Ezeokeke, Joseph Stroschein, Anael Roig-Gicquel, Siddharth Prakash, Jane Grande-Allen
- 14:55–15:25 C18 **Plenary Lecture: Designing and Translating Biomaterials for Regenerative Medicine and Therapeutics Applications**
Molly Stevens
- 15:25–15:55 **Coffee Break and Poster Session I**

Session Topic: Molecular Mechanisms of Heart Valve Disease

- 15:55–16:15 C19 **Keynote Lecture: Mechanisms of Calcific Aortic Valve Disease Visualized Through the Lens of Multi-Omics**
Elena Aikawa
- 16:15–16:30 C20 **Disruption of Notch1 And Gata5 in Mice Leads to Congenital Aortic Valve Disease**



Jun Yasuhara, Mona Aljuhani, Talita Choudhury, Anupama Rao, Sara Conroy, Yukie Ueyama, Stephanie LaHaye, Karlee Schultz, Emily Cameron, Sathiya Manivannan, Uddalak Majumdar, Vidu Garg

16:30–16:45 C21 **δ -granules From Thrombocytes and The Origin of The Early Calcified Structures of Cardiovascular Calcification**
Sergio Bertazzo, Elena Tsolaki, Shweta Agarwal, Ken Smith, Janice Tsui, Najma Latif, Adrian Chester

16:45 -17:00 C22 **Asymmetric Cellular and Structural Contributions to Cusp-Specific Remodeling and Malformation in the Aortic Valve**
Daniel Chaparro, Joshua Hutcheson

Day 2 – Thursday 18th September 2025

Session Topic: Innovation in Valve Repair and Replacement

09:00–09:20 C23 **Keynote Lecture: Innovation in Pediatric Heart Valve Repair and Replacement**
Pedro del Nido

09:20–09:35 C24 **Effects of Surgical Replacement Aortic Root Geometry on Aortic Valve Function using Fluid-Structure Interaction Simulations**
Hussam El-Nashar, Daniel Watson, Deniz Deniz Ozturk, Malak Sabry, Nairouz Shehata, Amr El-Sawy, Mohamed Nagy, Yuan-Tsan Tseng, Yasmine Aguib, Magdi Yacoub, James Moore Jr

09:35–09:55 C25 **Keynote Lecture: In vivo Remodeling Mitral Valve Leaflet Following Transcatheter Edge-To-Edge Repair in Humans**
Michael Sacks

09:55–10:10 C26 **Transcatheter Edge-to-Edge Repair for Tricuspid Regurgitation – Initial Experience from an Irish Centre**
Suleiman Obeidat, Conor Doyle, James Carey, Ellen Beirne, Susi Gnanaraj, Jamie Byrne, Niamh Mattimoe, Roger Byrne, Laura Murphy, Diarmaid Cadogan, Lavanya Saiva, Martin Lenihan, Andrew Sharp, Ronan Margey, Mark Spence, Ivan Casserly

10:10–10:25 C27 **Partial Heart Transplantation using Ice-free Cryopreservation – Homovitals 2.0**



Ulrich Stock, Kelvin Brockbank, Taufiek Konrad Rajab

10:25–10:55 C28 **Plenary Lecture: Xenotransplantation Enters the Clinic**
Leigh Peterson

10:55–11:15 **Coffee Break**

Session Topic: Preclinical Testing of Heart Valves

11:15–11:35 C29 **Keynote Lecture: Cardiac Valve Standards Development within the International Standards Organization**
Ajit Yoganathan

11:35–11:50 C30 **A Novel 3D Segmentation Technique for Patient-Specific Aortic Valve Modeling**
Mohamed Nagy, Magdi H. Yacoub

11:50–12:05 C31 **StressMAP: A Surrogate Model for Predicting Pacemaker Dependency in TAVI In-Silico Trials**
Yidan Xue, Ali Sarraimi-Foroushani, Haoran Dou, Alejandro F Frangi

12:05–12:20 C32 **Standardised Framework for Preclinical Translation of Paediatric Heart Valve Technologies**
Eleni Anna Kostopoulou, Fergal J O'Brien, Claire M Brougham

12:20–12:35 C33 **Application of a Staged Validation Approach to Patient-Specific Tissue Restoration Pulmonary Heart Valve FSI Simulations: From Material Testing to Post-Op and Long Term Modeling**
Deniz Ozturk, Maria Bastron, Fabrizio Crascì, Salvatore Pasta, Tahir Turgut, Nils Götzen, Martijn Cox, Mikel Isasi, Malte Rolf-Pissarczyk, Maximilian Peter Wollner, Bart Meuris, Nele Famaey

12:35–13:30 **Lunch**



Session Topic: Heart Valve Tissue Engineering

- 13:30–13:50 C34 **Keynote Lecture: Understanding Material-Driven in-situ Heart Valve Tissue Regeneration**
Carlijn Bouten
- 13:50–14:05 C35 **Spatiotemporal Assessment of (Patho)physiological Tissue Remodeling and Mechanics in In Situ Tissue-Engineered Pulmonary Valves in Sheep**
Sofia Artamonova, Elmer Middendorp, Silvia Dekker, Katja Schenke-Layland, Elena Aikawa, Carlijn Bouten, Sandra Loerakker, Anthal Smits
- 14:05–14:20 C36 **Lab Grown Bioengineered Tissue-based Valved Conduit with Somatic Growth Potential and Framed Valve for Congenital Pulmonary Valve Disease**
Zeeshan Syedain, Mariah McMahon, Abrielle Prunty, Jacob Benkofske, Mathew Lahti, James Berry, Richard Bianco, Gurumurthy Hiremath, Robert Tranquillo
- 14:20–14:35 C37 **Clinical Vascular Tissue Engineering Under GMP Conditions**
Johann Meinhart, Petros Skyllouriotis, Norbert Howanietz, Ivan Matia, Karin Schmidt, Heinz Schulz, Ingo Crailsheim, David Miosga, Michael Gorlitzer, Andreas Stuempflen, Martin Grabenwoeger, Peter Zilla
- 14:35–14:50 C38 **Synchrotron X-Ray Computational Tomography of Fibrous Scaffolds for Morphological Characterisation**
Yuan-Tsan Tseng, Rudolf Hellmuth, Marathe Shashidhara, Yunpeng Jia, Oriol Roche, Josh Williams, Kaz Wanelik, Marco Endrizzi, Magdi Yacoub
- 14:50–15:05 C39 **A Bioinspired Mitral Valve: Integrating Melt-electrowritten Scaffolds with a Human Placenta-derived Extracellular Matrix Hydrogel**
Kilian Mueller, Severin Riedlhammer, Matthias Pixner, Michael Pressnig, Paula Castejón Echevarne, Karl Schneider, Petra Mela
- 15:05–15:20 C40 **Characterization of Resolvable Polymers used for Developing in Utero Fetal Valve Replacements**
Sanchita Bhat, Julia Toma, Aimee Armstrong, Christopher Breuer, Lakshmi Prasad Dasi
- 15:20–16:00 **Coffee Break and Poster Session II**
- 16:00–16:15 C41 **Expert Talk: Biologically-engineered Pediatric Conduits that Grow**
Robert Tranquillo
- 16:15–16:30 C42 **Expert Talk: Harefield Tissue Engineered Valve - An Evolutionary Tale**



Magdi Yacoub

16:30-17:00 **Panel Discussion: Challenges of Tissue Engineered Heart Valve to Bedside?**

18:00-22:00 **Conference Dinner**

Day 3 – Friday 19th September 2025

Session Topic: The Ross Operation

09:00-09:20 C43 **Keynote Lecture: The Ross Renaissance: The Road From Theory to Clinical Evidence**
Ismail El-Hamamsy

09:20-09:35 C44 **Endocarditis Following The Ross Procedure: The Advantage of a Living Valve**
Giuditta Coppola, Giovanni Melina, Fabio De Robertis, Maximiliaan Notenboom, Mohammad Yousuf Bilal Salmasi, Paolo De Siena, Mohamed Elshalkamy, Shiva Seyed Mokhtassi, Albaraa Al Holy, Mario Petrou, Jullien Gaer, Ismail El-Hamamsy, Johanna J. M. Takkenberg, Magdi Habib Yacoub

09:35-09:50 C45 **North American Trends In Utilization And Outcomes of the Ross Procedure: A Word of Caution**
Amine Mazine, Steve Fan, Joanna Chikwe, Nimesh Desai, Jennifer Chung, Jad Malas, Kevin Chen, Angel Chen, Kyle Runeckles, Michael Bowdish, Joseph Bavaria, Maral Ouzounian

09:50-10:05 C46 **Biofilm-Forming ST-45 Staphylococcus Aureus Causing Late Pulmonary Homograft Endocarditis Post-Ross Procedure**
Emmanouela Chourda, Giovanni, Melina, Stefania Stefani, Fabio Miraldi, Magdi Yacoub

10:05-10:25 **Coffee Break**

Session Topic: Rheumatic Heart Disease



- 10:25–10:45 C47 **Keynote Lecture: Complement and Immunoglobulin Genes in Rheumatic Heart Disease**
Tom Parks
- 10:45–11:00 C48 **Expression of Toll-Like Receptor-2 and -4 in Normal Human Valves and Dysregulated Expression in Valves from Rheumatic Heart Disease Patients**
Najma Latif, Padmini Sarathchandra, Ann McCormack, Magdi Yacoub
- 11:00–11:15 C49 **Progressive Deterioration in Clinical Outcome in RHD, Influence of Therapeutic Interventions**
Susy Kotit, Shehab Anwer, Magdi Yacoub
- 11:15–11:30 C50 **Structural Remodeling in Rheumatic Heart Disease: Influence of Age and Gender in an Egyptian Cohort**
Mohamed Roshdy, Ayman M. Ibrahim, Arwa Kohela, Susy Kotit, Mina Azer, Eslam Soror, Eslam Abdelaziz, Sarah Halawa, Najma Latif, Hatem Hosny, Ahmed Afifi, Yasmine Aguib, Magdi Yacoub
- 11:30–11:50 C51 **Plenary Lecture: Lessons Learned, Foundation Laid - Time for The Clinical Leap**
Peter Zilla
- 11:50–12:00 **Awards and Closing Remarks**
Magdi Yacoub and Ajit Yoganathan