



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 **Keynote Lecture: Epidemiology of Heart Valve Disease**
Hanneke Takkenberg

09:25-09:40 14 **Mitral Valve Prolapse and Arrhythmic Sudden Death**
Gaetano Thiene

09:40-09:55 37 **Rationale and Need for Cardio-Obstetric Care Units**
Susy Kotit, Nagwa Ibrahim, Soha Heikal, Magdi Yacoub

09:55-10:10 73 **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 **Keynote Lecture: Hemodynamic Disruption and Valve Defects**
Jonathan Butcher



- 10:50–11:05 59 **Generation of Valvular Interstitial Cells from Human Pluripotent Stem Cells**
Amine Mazine
- 11:05–11:20 21 **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 18 **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 **Keynote Lecture: Heart Valve Glycomechanobiology**
Jane Grande-Allen
- 11:55–12:10 56 **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 30 **Bio-Hybrid Cardiac Patches with Sustained Losartan Delivery: A Strategy Against Left Ventricular Remodeling**
Melika Malekhosseini
- 12:25–12:40 27 **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		Keynote Lecture: TBC Kartik Balachandran
13:55–14:10	64	Studying Cardiovascular Mechanobiology in Development and Disease with Zebrafish Huseyin C. Yalcin
14:10–14:25	70	Cell-type Specific GTPase Regulation of Aortic Valve Homeostasis and CAVD Progression <u>G. Janani</u> , Kenny Nguyen, Katherine Driscoll, Jonathan Butcher
14:25–14:40	22	Mechanically Activated <i>snai1b</i> Coordinates the Initiation of Myocardial Delamination for Trabeculation <u>Jing Wang</u> , 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	51	Comparative Analysis of the Endothelial Glycocalyx in Aortic Valve and Vascular Endothelial Cells Under Distinct Shear Stress Conditions <u>Eze Ezeokeke</u> , Joseph Stroschein, Anael Roig-Gicquel, Siddharth Prakash, Jane Grande-Allen
14:55–15:25		Plenary Lecture: Designing and Translating Biomaterials for Regenerative Medicine and Therapeutics Applications <u>Molly Stevens</u>
15:25–15:55		Coffee Break and Poster Session I

Session Topic: Molecular Mechanisms of Heart Valve Disease

15:55–16:15		Keynote Lecture: Mechanisms of Calcific Aortic Valve Disease Visualized Through the Lens of Multi-Omics Elena Aikawa
16:15–16:30	29	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, <u>Vidu Garg</u>



- 16:30–16:45 12 **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 61 **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 **Keynote Lecture: Innovation in Pediatric Heart Valve Repair and Replacement**
Pedro del Nido
- 09:20–09:35 43 **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 **Keynote Lecture: In vivo Remodeling Mitral Valve Leaflet Following Transcatheter Edge-To-Edge Repair in Humans**
Michael Sacks
- 09:55–10:10 65 **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 71 **Partial Heart Transplantation using Ice-free Cryopreservation – Homovitals 2.0**
Ulrich Stock, Kelvin Brockbank, Taufiek Konrad Rajab
- 10:25–10:55 **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		Keynote Lecture: TBC Ajit Yoganathan
11:35–11:50	55	A Novel 3D Segmentation Technique for Patient-Specific Aortic Valve Modeling <u>Mohamed Nagy</u> , Magdi H. Yacoub
11:50–12:05	69	StressMAP: A Surrogate Model for Predicting Pacemaker Dependency in TAVI In-Silico Trials <u>Yidan Xue</u> , Ali Sarrami-Foroushani, Haoran Dou, Alejandro F Frangi
12:05–12:20	13	Standardised Framework for Preclinical Translation of Paediatric Heart Valve Technologies <u>Eleni Anna Kostopoulou</u> , Fergal J O'Brien, Claire M Brougham
12:20–12:35	74	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 <u>Deniz Ozturk</u> , 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		Keynote Lecture: Understanding Material-Driven in-situ Heart Valve Tissue Regeneration <u>Carlijn Bouten</u>
13:50–14:05	11	Spatiotemporal Assessment of (Patho)physiological Tissue Remodeling and Mechanics in In Situ Tissue-Engineered Pulmonary Valves in Sheep <u>Sofia Artamonova</u> , Elmer Middendorp, Silvia Dekker, Katja Schenke-Layland, Elena Aikawa, Carlijn Bouten, Sandra Loerakker, Anthal Smits



14:05–14:20	23	Lab Grown Bioengineered Tissue-based Valved Conduit with Somatic Growth Potential and Framed Valve for Congenital Pulmonary Valve Disease <u>Zeeshan Syedain</u> , Mariah McMahon, Abrielle Prunty, Jacob Benkofske, Mathew Lahti, James Berry, Richard Bianco, Gurumurthy Hiremath, Robert Tranquillo
14:20–14:35	10	Clinical Vascular Tissue Engineering Under GMP Conditions <u>Johann Meinhardt</u> , 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	54	Synchrotron X-Ray Computational Tomography of Fibrous Scaffolds for Morphological Characterisation <u>Yuan-Tsan Tseng</u> , Rudolf Hellmuth, Marathe Shashidhara, Yunpeng Jia, Oriol Roche, Josh Williams, Kaz Wanelik, Marco Endrizzi, Magdi Yacoub
14:50–15:05	45	A Bioinspired Mitral Valve: Integrating Melt-electrowritten Scaffolds with a Human Placenta-derived Extracellular Matrix Hydrogel <u>Kilian Mueller</u> , Severin Riedlhammer, Matthias Pixner, Michael Pressnig, Paula Castejón Echevarne, Karl Schneider, Petra Mela
15:05–15:20	60	Characterization of Resolvable Polymers used for Developing in Utero Fetal Valve Replacements Sanchita Bhat, <u>Julia Toma</u> , Aimee Armstrong, Christopher Breuer, Lakshmi Prasad Dasi
15:20–16:00		Coffee Break and Poster Session II
16:00–16:15		Expert Talk: Biologically-engineered Pediatric Conduits that Grow Robert Tranquillo
16:15–16:30		Expert Talk: TBC 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		Keynote Lecture: TBC Ismail El-Hamamsy
09:20–09:35	46	Endocarditis Following The Ross Procedure: The Advantage of a Living Valve <u>Giuditta Coppola</u> , 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	58	North American Trends In Utilization And Outcomes of the Ross Procedure: A Word of Caution <u>Amine Mazine</u> , 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	66	Biofilm-Forming ST-45 Staphylococcus Aureus Causing Late Pulmonary Homograft Endocarditis Post-Ross Procedure <u>Emmanouela Chourda</u> , Giovanni, Melina, Stefania Stefani, Fabio Miraldi, Magdi Yacoub
10:05–10:25		Coffe Break

Session Topic: Rheumatic Heart Disease

10:25–10:45		Keynote Lecture: Complement and Immunoglobulin Genes in Rheumatic Heart Disease Tom Parks
10:45–11:00	62	Expression of Toll-Like Receptor-2 and -4 in Normal Human Valves and Dysregulated Expression in Valves from Rheumatic Heart Disease Patients <u>Najma Latif</u> , Padmini Sarathchandra, Ann McCormack, Magdi Yacoub



11:00–11:15	38	Progressive Deterioration in Clinical Outcome in RHD, Influence of Therapeutic Interventions <u>Susy Kotit</u> , Shehab Anwer, Magdi Yacoub
11:15–11:30	47	Structural Remodeling in Rheumatic Heart Disease: Influence of Age and Gender in an Egyptian Cohort <u>Mohamed Roshdy</u> , 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		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