



# ASAIO 58th Annual Conference

San Francisco, California | June 13-16, 2012



# PROGRAM

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Philip Vierling, CEO  
Kalypto Medical



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# PROGRAM INDEX

Awards & Fellowships	2 & 16
Business Meeting ASAIO Members	19
Educational Grant Sponsors	2
Exhibit Floor Plan	3
Exhibit Product Descriptions	4 & 5
Floor Plan Fairmont	7
Hastings Lecture	16
Keynote Speaker	21
New Venture Forum	15
Pediatric Conference	8
President's Address	16
Program Outline	6
Scientific Sessions	9-24
VAD Coordinator Session	8

# ASAIO JOURNAL



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## ASAIO JOURNAL MANUSCRIPTS

The ASAIO Journal Publisher, Wolters Kluwer Health - Lippincott Williams & Wilkins will be in Exhibit Booth #9. Manuscripts are to be submitted online to [www.editorialmanager.com/asaio](http://www.editorialmanager.com/asaio)

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# ACCREDITATION

## Physicians | Nurses | Pefusionists

### PHYSICIANS

**CME 27.75 AMA PRA CATEGORY 1 CREDITS™**

*Sign In Daily At The Registration Counters & Complete Evaluation Forms For Every Session You Attend.*

This live activity has been planned and implemented in accordance with the essential areas and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint sponsorship of the University of Massachusetts Medical School Office of Continuing Medical Education (UMMS-OCME) and ASAIO. The UMMS-OCME is accredited by the ACCME to provide continuing medical education for physicians.

The University of Massachusetts Medical School designates this educational activity for a maximum of 27.75 AMA PRA Category 1 Credits™. Physicians should only claim credit commensurate with the extent of their participation in the activity.

**WEDNESDAY, JUNE 13TH .....6.5 CREDITS  
 (PEDIATRIC SESSION)**

**WEDNESDAY, JUNE 13TH .....2.75 CREDITS  
 (VAD COORDINATOR SESSION)**

**THURDAY, JUNE 14TH .....6.75 CREDITS**

**FRIDAY, JUNE 15TH .....6.5 CREDITS**

**SATURDAY, JUNE 16TH .....5.25 CREDITS**

### NURSES | CEU 33.3 CREDITS

*Sign In Daily At The Registration Counters & Complete Evaluation Forms For Every Session You Attend.*

**WEDNESDAY, JUNE 13TH ..... 7.8 CREDITS  
 (PEDIATRIC SESSION)**

**WEDNESDAY, JUNE 13TH ..... 3.3 CREDITS  
 (VAD COORDINATOR SESSION)**

**THURDAY, JUNE 14TH ..... 8.1 CREDITS**

**FRIDAY, JUNE 15TH ..... 7.8 CREDITS**

**SATURDAY, JUNE 16TH ..... 6.3 CREDITS**

### PERFUSIONIST | CCP 21.2 CATEGORY 1 CEU'S

*Sign In Daily At The Registration Counters & Complete Evaluation Forms For Every Session You Attend. A photo ID is required for participation to obtain registration materials*

The American Board of Cardiovascular Perfusion will allot the following Category 1 CEU's to those Perfusionists who attend the ASAIO Annual Conference as follows:

**WEDNESDAY, JUNE 13TH ..... 5.9 CEU'S  
 (PEDIATRIC SESSION)**

**WEDNESDAY, JUNE 13TH ..... 3.3 CEU'S  
 (VAD COORDINATOR SESSION)**

**THURDAY, JUNE 14TH ..... 3.3 CEU'S**

**FRIDAY, JUNE 15TH ..... 3.6 CEU'S**

**SATURDAY, JUNE 16TH ..... 5.1 CEU'S**

# ASAIO AWARD & FELLOWSHIP RECIPIENTS 2012

## WILLEM J KOLFF / DON B OLSEN AWARD

SPONSORED BY THE MEDFORTE FOUNDATION

Karen Trainor, DVM, MS – *Research Assistant Professor, Veterinary Pathology, Texas A & M University*

“Comparative Pathology of an Implantable Left Atrial Pressure Monitor”

## ASAIO Y NOSÉ INTERNATIONAL FELLOWSHIP

SPONSORED BY THE Y NOSÉ FELLOWSHIP FUND

Mamoru Arakawa, MD – *Research Staff, Artificial Organs, National Cerebral & Cardiovascular Center*

“Alternation of LV Preload by Continuous-Flow LVAD with Native Heart Load Control System (NHLCS) in Chronic Heart”

## ASAIOFYI – FOR YOUNG INNOVATORS FELLOWSHIP RECIPIENTS

SPONSORED BY THE PAUL S. MALCHESKY FELLOWSHIP FUND

Kyungsoo Lee, PhD – *Researcher, Internal Medicine, University of Michigan Health System*

“Development of a Multifunctional Detoxifying Unit for Liver Failure Patients”

Megan Jamiolkowski – *Bioengineering Graduate Student, University Of Pittsburgh*

“A System for Real Time Visualization of Platelet Deposition onto Opaque Surfaces Using Hemoglobin Depleted Blood”

Kavitha Muthiah, MBChB – *Cardiology Research Fellow, St. Vincent’s Hospital, Sydney*

“Effect of Concomitant Speed Increase with Exercise on Invasively Measured Hemodynamics in Patients with Continuous Flow left Ventricular Assist Devices (LVADs)”

Mariko Kobayashi, MD – *Professor, Thoracic Surgery, Cleveland Clinic*

“Initial Biocompatibility Evaluation of the Continuous-Flow Total Artificial Heart in a Calf”

Sean McCandless – *Bioengineering Research Associate, Intermountain Medical Center*

“Temporary Ventricular Assist Devices as a Bridge to Long-Term Support: Are They Effective?”

Leonard Ebah, MD – *Research Fellow, Renal Medicine, Manchester Royal Infirmary*

“Design, Manufacture and Application of Hollow Polymer Microneedles for Sampling Interstitial Fluid in Kidney Disease”

# ASAIO EDUCATIONAL GRANT SPONSORS

## PLATINUM LEVEL



## SILVER LEVEL



## BRONZE LEVEL



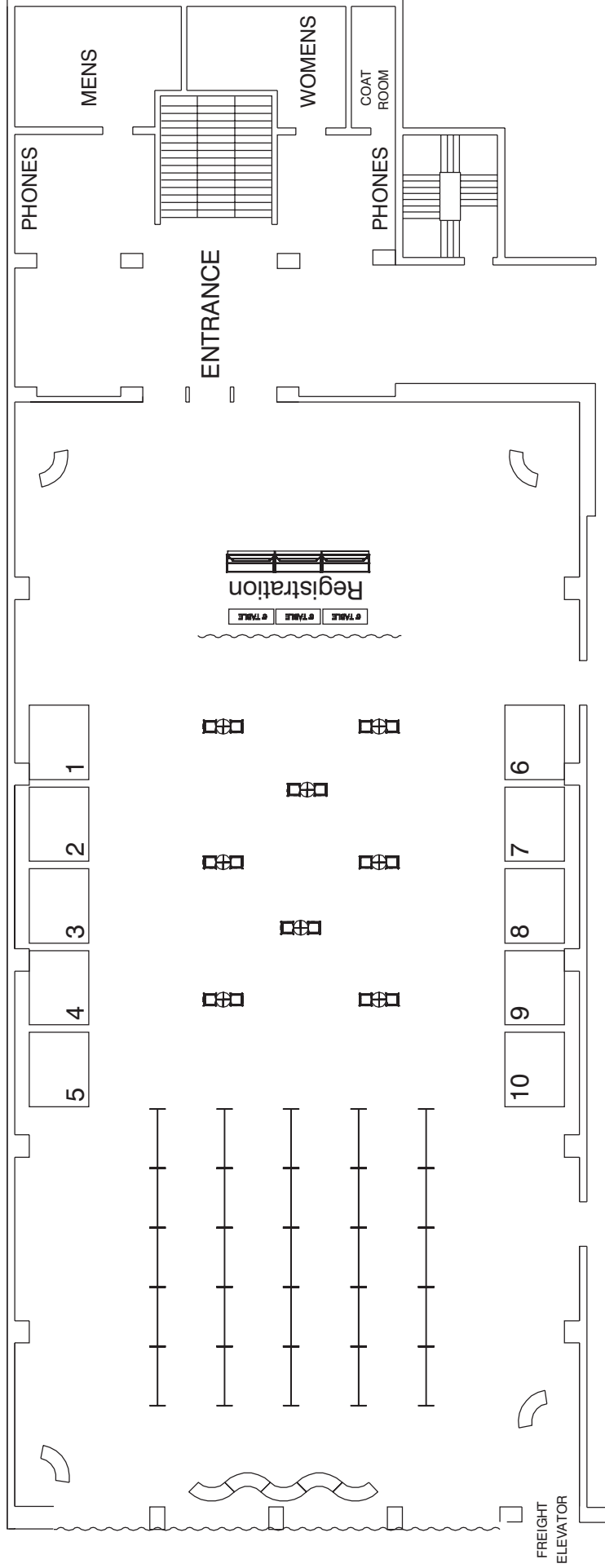
## INDUSTRY SPONSORS



# ASAIO EXHIBITS, POSTERS, REFRESHMENTS & REGISTRATION

June 14-16, 2012

Grand Ballroom | Fairmont San Francisco



**Booth 1** Thoratec Corporation

**Booth 6** Berlin Heart Inc

**Booth 2** Fresenius Medical Care North America

**Booth 7** Abiomed Inc

**Booth 3** SynCardia Systems Inc

**Booth 8** MAQUET Medical Systems

**Booth 4** International Center for Artificial Organs & Transplantation

**Booth 9** Wolters Kluwer Health–Lippincott Williams & Wilkins

**Booth 5** Transonic

**Booth 10** HeartWare

# EXHIBIT BOOTH NUMBERS & PRODUCT DESCRIPTIONS



**ABIOMED INC**  
**BOOTH 7**  
**DANVERS, MASSACHUSETTS**

Abiomed was founded in 1981 and is the leading provider of breakthrough heart support technologies. From the world's first total replacement heart to the World's Smallest Heart Pump that provides circulatory support with rapid and simple insertion, Abiomed is dedicated to finding ways to treat heart failure so that patients and physicians have the most advanced, successful and beneficial technology available to improve quality of life.



**BOOTH 2**  
**WALTHAM, MASSACHUSETTS**

DIALISORB Regenerative Sorbent Technology by Fresenius Medical Care.

DialiSorb Sorbent Technology is a dialysate purification and regeneration process that uses as little as 10 liters of potable tap water for a sorbent dialysis treatment. This innovative technology which is based on 35 years of renal experience will offer numerous benefits such as:

- Mobility with low water volume
- Freedom from complex water purification systems
- Treatment delivery in a wide range of environments

The promise of DialiSorb Sorbent Technology is true mobility and future wearability changing the dialysis landscape forever.



**BERLIN HEART INC**  
**BOOTH 6**  
**THE WOODLANDS, TEXAS**

Berlin Heart, the only company worldwide that manufactures and distributes implantable (INCOR®) and paracorporeal (EXCOR®) VADs for patients of every age and body size with cardiovascular disease. EXCOR® Pediatric is now FDA approved for use in the United States.



**HEARTWARE INC**  
**BOOTH 10**  
**FRAMINGHAM, MASS**

HeartWare, Inc. is developing a family of implantable mechanical circulatory support systems for the treatment of advanced heart failure. Through a cadence of progressively smaller devices implanted using less invasive techniques, HeartWare expects to treat an increasing proportion of heart failure patients and to access them at an earlier stage of their disease progression. HeartWare's lead device, the HeartWare® Ventricular Assist System, incorporates state-of-the-art peripherals and features the only full-output pump designed to be implanted less invasively in the pericardial space. The HeartWare® System has CE-Mark approval and is currently the subject of a 150-patient US IDE clinical trial.



**SYNCARDIA SYSTEMS INC**  
**BOOTH 3**  
**TUCSON, ARIZONA**

The SynCardia temporary Total Artificial Heart (TAH-t) is the world's only FDA, Health Canada and CE approved Total Artificial Heart. Originally used as a permanent replacement heart, the TAH-t is currently approved as a bridge to transplant for patients dying from end-stage biventricular failure. The 13.5 lb Freedom™ portable driver has received CE approval in Europe and is undergoing an IDE clinical study in the U.S. The Freedom driver is designed to provide mobility for stable TAH-t patients both inside and outside the hospital. Visit our booth for updates on the study, Companion 2 Driver System and the 50cc TAH-t.



**THORATEC CORPORATION**  
**BOOTH 1**  
**PLEASANTON, CALIFORNIA**

Thoratec is a world leader in therapies to address advanced-stage heart failure. The company's products include the HeartMate® LVAS (Left Ventricular Assist System) and Thoratec® VAD (Ventricular Assist Device) with more than 18,000 devices implanted in patients suffering from heart failure. Thoratec also manufactures and distributes the CentriMag® and PediMag®/PediVAS® product lines. For more information, visit the company's website at <http://www.thoratec.com>.

# MAQUET

GETINGE GROUP

**MAQUET MEDICAL SYSTEMS, USA**

**BOOTH 8**

**WAYNE, NEW JERSEY**

MAQUET Medical Systems, USA is a global market leader offering a comprehensive portfolio of products utilized in the Hybrid OR, ICU, Cath Lab including tables, lights and booms as well as Anesthesia, Ventilation and Cardiac support. Our products are designed to meet the needs of clinical professionals in the areas of: surgery, cardiac intervention, perfusion, anesthesia, and respiratory. MAQUET is focused on improving patient care and quality of life, providing clinicians with future-oriented technology that fits their daily practice and investing in the development of innovative technologies and solutions that will help further advance clinical practice and significantly improve patient outcomes.



International  
Center for Artificial  
Organs and  
Transplantation

**ICAOT – INTERNATIONAL CENTER FOR ARTIFICIAL ORGANS AND TRANSPLANTATION**

**BOOTH 4**

**PAINESVILLE, OHIO**

The International Center for Artificial Organs and Transplantation is organized to maintain and operate an educational center. It supports the International Center for Medical Technologies' Museum on artificial organ technologies, manages the publication of Artificial Organs and Therapeutic Apheresis and Dialysis, and disseminates information on the historical development, current state of the art and future development of artificial organs and organ transplantation.



**TRANSONIC SYSTEMS INC**

**BOOTH 5**

**ITHACA, NEW YORK**

Transonic Systems' Flowmeter products, the recognized gold standard volume flow measurement apparatus for liquids in clinical and laboratory settings. Transonic Flowmeters are used worldwide in Cardiovascular Surgery, Vascular Access Angioplasty, Neurosurgery, Intensive and Critical Care, Product Testing, Laboratory Research, Hemodialysis Monitoring and as components in VAD, CPB and clinical devices. Transonic now also has a full line of pressure and pressure volume catheters for laboratory use.

Transonic Systems display will feature:

- Transonic Flowmetering for intra-operative and implantable use
- EndoGear fully implantable systems
- Scisense pressure apparatus
- Clinical Transonic Inside OEM products and capabilities.



**WOLTERS KLUWER HEALTH – LIPPINCOTT WILLIAMS & WILKINS**

**BOOTH 9**

**PHILADELPHIA, PENNSYLVANIA**

Wolters Kluwer Health (Philadelphia, PA) is a leading global provider of information, business intelligence and point-of-care solutions for the healthcare industry and the proud publisher of the ASAIO Journal, A Peer Reviewed Journal of the American Society for Artificial Internal Organs. Major brands include traditional publishers of medical and drug reference tools, journals and textbooks, such as Lippincott Williams & Wilkins; and electronic information providers, such as Ovid®, UpToDate®, Medi-Span®, Facts & Comparisons®, Pharmacy OneSource® and ProVation® Medical.

# ASAIO PROGRAM OUTLINE

## THURSDAY, JUNE 14, 2012

**7:45AM – 12:15PM** **GENERAL SESSION 1 – GOLD ROOM/LOBBY** International Issues In Artificial Organs Development  
Common Challenges: Anticoagulation & Thrombosis In Adults & Pediatrics

**9:30AM – 10:15AM** **VISIT EXHIBITS & POSTERS – ENJOY REFRESHMENTS – GRAND BALLROOM**

**12:15PM – 1:15PM** **LUNCH BREAK** ASAIOfyi Luncheon for ASAIOfyi Members Meet the Journal Editor & Managing Editor  
**GARDEN ROOM LOBBY – TICKET REQUIRED**

**1:30PM – 3:00PM** **CARDIAC 1** Bleeding & Anticoagulation VAD Patients – *Venetian Room Lobby*  
**BIOENGINEERING 1** Applied Biomaterials & Nanomedicine – *Pavilion Room Lobby*  
**PULMONARY 1** Ambulatory ECMO / Artificial Lung – *Crystal Room Lobby*  
**RENAL 1** Man & Machine: Pt & Technical Barriers In Home Hemodialysis – *California Room Mezzanine*

**3:00PM – 3:45PM** **VISIT EXHIBITS & POSTERS – ENJOY REFRESHMENTS – GRAND BALLROOM**

**3:45PM – 5:30PM** **CARDIAC 2** Pro - Con: VADs In Less Ill Cohort | Surgical Technique VAD Implant – *Venetian Room Lobby*  
**BIOENGINEERING 2** Anti-Thrombogenic Surfaces – *Pavilion Room Lobby*  
**RENAL 2** Novel Technologies Pt Monitoring – *California Room Mezzanine*  
**PEDIATRIC 1** Pediatric VAD Support – *International Room Mezzanine*

**6:00PM – 7:00PM** **ASAIO WELCOME RECEPTION – CROWN ROOM 24TH FLOOR – TICKET REQUIRED**

## FRIDAY, JUNE 15, 2012

**8:00AM – 12:15PM** **GENERAL SESSION 2 – GOLD ROOM/LOBBY**  
New Venture Forum - The First Annual "Medical Device Entrepreneur's Forum"  
ASAIO Hastings Lecture | President's Address | ASAIO Fellowships & Awards

**8:00AM – 10:00AM** **ASAIOfyi FOR YOUNG INNOVATORS** – Rapid Fire Presentations

**10:00AM – 10:45AM** **VISIT EXHIBITS & POSTERS – ENJOY REFRESHMENTS – GRAND BALLROOM**

**12:15PM – 1:15PM** **LUNCH BREAK** ASAIOfyi Luncheon for ASAIOfyi Members – Career Development  
**GARDEN ROOM LOBBY – TICKET REQUIRED**

**1:30PM – 3:15PM** **CARDIAC 3** Physiologic Adaptation to VADs – *Venetian Room Lobby*  
**BIOENGINEERING 3** Blood Damage & Thrombosis Modeling – *Pavilion Room Lobby*  
**FOUNTAIN ROOM LOBBY** Commercialization Symposium – *Fountain Room Lobby*  
**PEDIATRIC 2** Pediatric ECMO / ECLS – *International Room Mezzanine*

**3:15PM – 4:00PM** **VISIT EXHIBITS & POSTERS – ENJOY REFRESHMENTS – GRAND BALLROOM**

**4:00PM – 5:45PM** **CARDIAC 4** Are VAD's Economically Viable? | Temporary Circulatory Support – *Venetian Room Lobby*  
**BIOENGINEERING 4** Computers & Experiments: Prediction & Validation – *Pavilion Room Lobby*  
**PULMONARY 2** Chronic & Acute Hypercapnic Failure – *Crystal Room Lobby*  
**RENAL 3** Innovative Approaches To Extracorporeal Renal Support With Immediate Applicability – *California Room Mezzanine*

**5:45PM** **ASAIO MEMBER BUSINESS MEETING – HUNT ROOM/MEZZANINE**

## SATURDAY, JUNE 16, 2012

**8:00AM – 9:30AM** **CARDIAC 5** VAD Clinical Outcomes – *Venetian Room Lobby*  
**BIOENGINEERING 5** Human Factors Engineering – *Pavilion Room Lobby*  
**PULMONARY 3** New & Novel Artificial Lung Technologies – *Crystal Room Lobby*  
**CARDIAC 6** VAD Hemodynamics – *Gold Room Lobby*

**9:30AM – 10:15AM** **VISIT EXHIBITS & POSTERS – ENJOY REFRESHMENTS – GRAND BALLROOM**

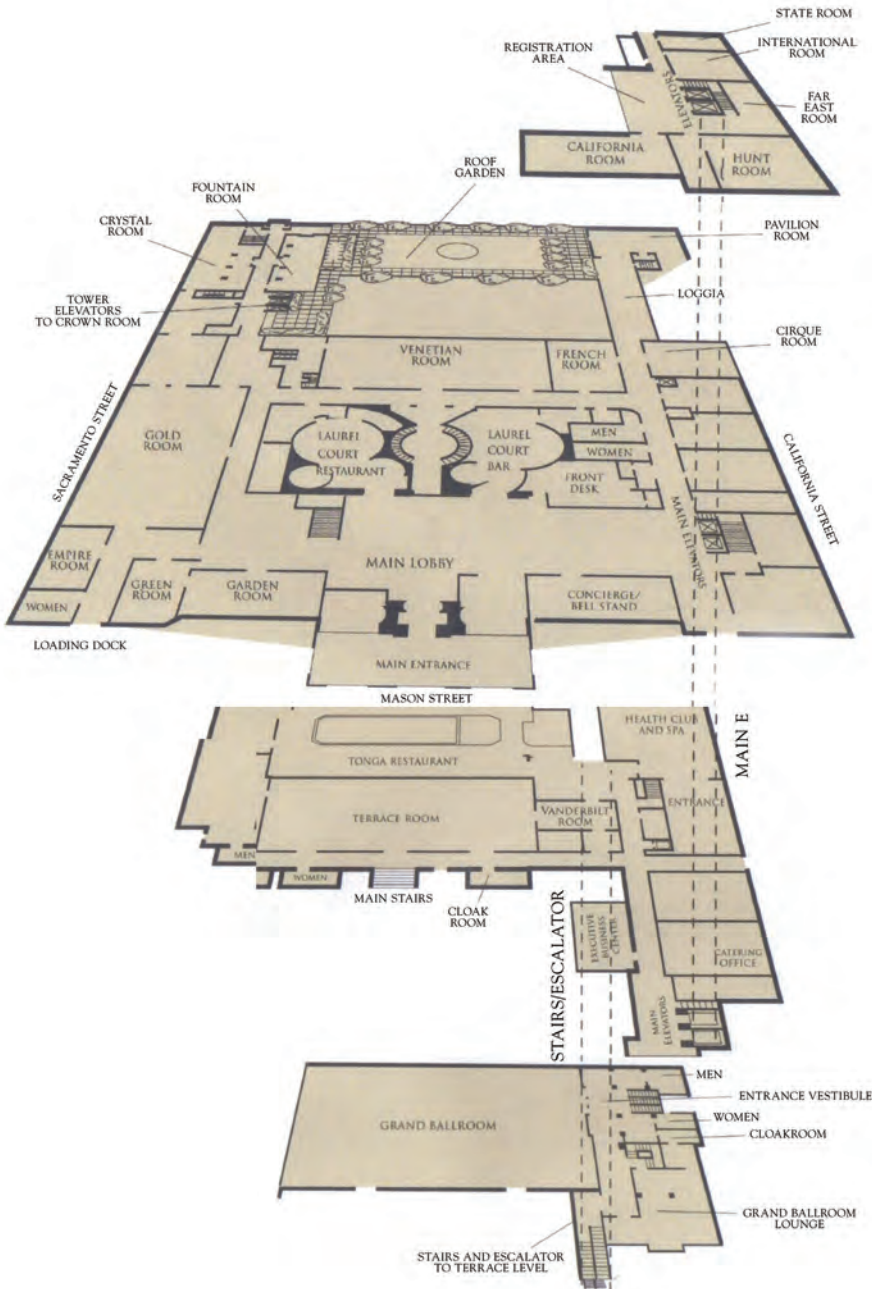
**10:15AM – 10:45AM** **GENERAL SESSION 3 – GOLD ROOM/LOBBY**  
Keynote Address Innovations: Past, Present And Future  
– Dean Kamen, PhD, President DEKA Research & Development Corporation

**10:45AM – 12:00PM** **CARDIAC 7** Industry Speaks: Improvements In Device Technology – *Venetian Room Lobby*  
**BIOENGINEERING 6** Oral Presentations – *Pavilion Room Lobby*  
**PULMONARY 4** Oral Presentations – *Crystal Room Lobby*  
**RENAL 4** Technological Innovations In Dialysis Delivery – *California Room Lobby*

**12:00PM – 1:15PM** **LUNCH BREAK**

**1:30PM – 3:30PM** **CARDIAC 8** VAD Complications – *Venetian Room Lobby*  
**BIOENGINEERING 7** Engineering Approaches In The Development Of Artificial Organs – *Pavilion Room Lobby*  
**PULMONARY 5** Oral Presentations – *Crystal Room Lobby*  
**CARDIAC 9** Cardiopulmonary Bypass – *Fountain Room Lobby*

# THE FAIRMONT SAN FRANCISCO FLOOR PLAN



## MEZZANINE LEVEL

- 6/14 – 6/16 • Renal Sessions • California Room
- 6/14 – 6/15 • Pediatric Sessions • International Room
- 6/15 • ASAIOfyi Rapid Fire Presentations • California Room
- 6/15 • ASAI Member Business Meeting • Hunt Room

## LOBBY LEVEL

- 6/13 – 6/16 • Speaker Ready Room • French Room
- 6/13 • ASAI VAD Coordinator Sessions • Crystal Room
- 6/14 – 6/16 • General Sessions • Gold Room
- 6/14 – 6/16 • Cardiac Sessions • Venetian Room 1-5 & 7-8
- 6/16 • Cardiac 6 Gold Room and Cardiac 9 Fountain Room
- 6/14 – 6/16 • Bioengineering Sessions • Pavilion Room
- 6/14 – 6/16 • Pulmonary Sessions • Crystal Room
- 6/15 • Commercialization Session • Fountain Room

## TERRACE LEVEL

- 6/13 • ASAI Pediatric Conference • Terrace Room

## GRAND BALLROOM LEVEL

- 6/13 – 6/16 • ASAI Registration
- 6/14 – 6/16 • Exhibits
- 6/14 – 6/16 • Poster Presentations
- 6/14 – 6/16 • Refreshment Breaks

# WEDNESDAY, JUNE 13

## ASAIO FIRST ANNUAL PEDIATRIC PROGRAM

**8:30 AM - 4:30 PM** Terrace Room - Terrace Level  
Co-Sponsored by Berlin Heart Inc

### INTRODUCTION AND WELCOME

**8:30AM – 8:40AM**

*Peter Wearden, MD, PhD, Associate Professor of Pediatric CT Surgery, Childrens Hospital of Pittsburgh*

### PUMPKIN CONTRACTORS

**8:40AM-8:55AM**

*PediaFlow Pediatric Ventricular Assist Device  
Harvey S. Borovetz, PhD, Professor of Bioengineering, University of Pittsburgh*

**8:55AM-9:10AM**

*Integrated Pediatric Cardiopulmonary Assit System  
Mark Gartner, PhD, President, Ension, Inc.*

**9:10AM-9:25AM**

*Pediatric Pump Lung  
Bartley Griffith, MD, Professor of Cardiac Surgery, University of Maryland Medical Center*

**9:25AM-9:40AM**

*Infant and Child Size Jarvik 2000 Hearts  
Antonio Amodeo, MD, Bambino Gesu Children's Hospital, Rome (for Dr Jarvik)*

**9:40AM-9:55AM**

Panel Discussion

**9:55AM-10:15AM**

*Overview Of The PumpKIN Clinical Protocol  
Ellen Rosenberg, RN, Clinical Trials Specialist, CV Sciences, NIH/NHLBI*

**10:15AM-10:55AM**

*Plans For The Multicenter Clinical Trial Management  
Timothy Baldwin, PhD, Program Director, DCVS-BETR-ATSB, National Institutes of Health*

### REFRESHMENT BREAK

**10:55AM-11:20AM**

### ANTICOAGULATION AND THROMBOSIS

**11:20AM-11:45AM**

*Anticoagulation Challenges In Pediatric Mechanical Circulatory Support  
Patricia Massicotte, MD, MS, Professor Pediatrics, University of Alberta*

**11:45AM-12:10PM**

*Developmental Changes In Platelet Biology  
Alan Michelson, MD, Professor Pediatrics & Medicine, Childrens Hospital Boston*

### LUNCH BREAK

**12:10PM-1:10PM**

### OUTCOMES MEASUREMENT

**1:10PM-1:35PM**

*Challenges In Assessment Of Quality of Life In Pediatrics  
Elizabeth Blume, MD, Associate Prof & Medical Dir, Heart Failure /Transplant, Childrens Hospital Boston*

**1:35PM-2:00PM**

*Monitoring Neurologic Outcomes In Pediatric MCS  
Rebecca Ichord, MD, Associate Prof Neurology/ Pediatrics, Childrens Hospital Philadelphia*

**2:00PM-2:25PM**

*Considerations And Challenges For Discharge Or Destination Therapy In Pediatrics  
Stephen Winowich, ChE, President Artificial Heart Program, University of Pittsburgh Medical Center*

### REFRESHMENT BREAK

**2:25PM-2:50PM**

### CHALLENGES FOR THE FUTURE

**2:50PM-3:15PM**

*Do We Need BiVADs And Pulsatile Pumps?  
David Morales, MD, Associate Congenital Heart Surgeon, Baylor College of Medicine*

**3:15PM-3:40PM**

*Considerations For Cardiac Recovery In Pediatric VADs  
Justin Yeh, MD, Clinical Assistant Prof of Pediatric Cardiology*

**3:40PM-4:05PM**

*What Is The Role Of ECMO In A Pediatric VAD Program?  
Robert Jaquiss, MD, Chief Pediatric Heart Surgery, Duke Childrens Hospital*

### CLOSING

**4:05PM-4:30PM**

Closing Comments

## ASAIO VAD COORDINATOR SESSION

**6:00 PM - 9:00 PM** Crystal Room - Lobby Level

**6:00-6:15PM**

*Welcome  
Moderator: Anne Cannon, RN, BSN, Program Manager Mech Circ Support, Univ Colorado Hospital*

**6:15-6:45PM**

*Multidisciplinary Functional Mobility Program for LVAD Patients  
Raquel Bunge, RN, BSN, Senior Clinical Nurse, CV Surgery, Methodist Hospital*

**6:45-7:30PM**

*What Do We Do With The Information We Send To waveforms.com?  
Alicia Baumberger, PhD, Project Manager, Thoratec  
Jay Pinette, BS, MBA, Senior Manager of Technical Support & Field Services, Thoratec*

**7:30-8:15PM**

*What Do Those Waveforms Mean?  
Lisa Colton, RN, Heartware Inc.*

**8:15-8:45PM**

*Patient Management -Tales From An Experienced Center  
Marcia Stahovich, RN, CCRN, Advanced Clinician Mech Circ Support, Sharp Memorial Hospital*

### PANEL DISCUSSION

**8:45-9:00PM**

# THURSDAY, JUNE 14

## GENERAL SESSION 1

7:45AM-12:15PM Gold Room - Lobby Level

### INTRODUCTION & WELCOME

7:45AM-8:00AM

William Weiss, PhD, ASAIO Program  
Chariman, Howard E Morgan  
Professor of Surgery & Bioengineering,  
Penn State College of Medicine

H. David Humes, MD, ASAIO President,  
Professor of Internal Medicine,  
University Michigan



### INTERNATIONAL ISSUES IN ARTIFICIAL ORGANS DEVELOPMENT

8:00AM - 9:30AM

U.S. FDA Global Regulatory Affairs  
Carole Carey, BSEE, Director, International Staff  
FDA / CDRH

Artificial Organs And Organ Transplantation From A  
European Perspective  
Joerg Vienken, PhD, VP Biosciences, Fresenius Medical  
Care Deutschland GmbH

JSAO Update  
Ryuji Tominaga, MD, PhD, Professor of CV Surgery,  
Kyushu University

### VISIT EXHIBITS & POSTERS - ENJOY REFRESHMENTS

9:30AM-10:15AM Grand Ballroom

### COMMON CHALLENGES: ANTICOAGULATION AND THROMBOSIS IN ADULTS AND PEDIATRICS

10:15AM-12:15PM

If I Only Had A Heart: Pathophysiology and  
Pharmacotherapy Management in MCS.  
Paul Nolan, PhD, Professor of Pharmacy Practice &  
Science, University of Arizona College of Pharmacy

Acquired Von Willebrand Syndrome in VAD  
Receptients: Updates & Future Directions  
Sheri Crow, MD, Assistant Prof Pediatric Critical Care,  
Mayo Clinic

AntiPlatelet Therapy  
Alan Michelson, MD Director Ctr for Platelet Research  
Studies, Childrens Hospital Boston

Anticoagulation In Hemodialysis: Automated  
Regional Citrate Anticoagulation Vs. Other Methods  
Balazs Szamosfalvi, MD, Staff Physician,  
Henry Ford Hospital

### LUNCH BREAK

12:15PM-1:30PM

### ASAIOFYI LUNCHEON - ASAIOFYI MEMBERS

Meet the Journal Editor & Managing Editor

Admission by Ticket Only

12:15PM-1:15PM Garden Room - Lobby Level

ASAIO Journal Editor In Chief: Joseph Zwischenberger,  
MD, Surgery Chairman, University of Kentucky

ASAIO Journal Managing Editor: Marjory Spraycar,  
KWF Editorial Services, LLC

## CARDIAC TRACK

1:30PM-3:00PM Venetian Room - Lobby Level

### CARDIAC 1: BLEEDING AND ANTICOAGULATION IN VAD PATIENTS

Co-Chairs: Jonathan Haft, MD, Assistant Professor Surgery,  
University of Michigan  
Sanjeev Aggarwal, MD, Director Mechanical Circulatory  
Support, Mid America Heart Institute

1:30PM GI Bleeding

Sanjeev Aggarwal, MD, Director, Mechanical  
Circulatory Support, Mid America Heart Institute

1:45PM-2:00PM

Results with an Anticoagulation Protocol in 99 Total  
Artificial Heart Recipients  
Jack Copeland, MD - University of California San Diego

2:00PM-2:15PM

Mitochondrial Damage: Potential Mechanism  
of Platelet Dysfunction Leading to Bleeding  
Complications in Continuous-Flow Left Ventricular  
Assist Device (CF-LVAD) Patients  
Jingping Hu, PhD - University of Maryland

2:15PM-2:30PM

Can Thromboelastography (TEG) Predict  
Gastrointestinal Bleeding in Patients with  
Continuous Flow Pumps?  
Homam Ibrahim, MD - The Methodist Hospital

2:30PM-2:45PM

Out with the Old and in with the New:  
A New Algorithm for Treatment of GI Bleeding  
in VAD Patients  
Konrad Sarosiek, MD - Thomas Jefferson University -  
ASAIOfyi

2:45PM-3:00PM

New Insights into Non-Surgical Bleeding Risk in VAD  
Patients: Beyond VWF Multimers  
Trevor Snyder, PhD - INTEGRIS Baptist Medical Cntr

### CARDIAC POSTER SESSION 1 - POSTERS AVAILABLE ALL DAY IN THE GRAND BALLROOM

#### POSTER BOARD #

- 1 Caval Collapse during Venous Drainage during CPB  
Saad Fikry Abdel-Sayed, Ph.D. - University Hospital,  
Switzerland
- 2 Left Ventricular Stroke Work Control Using a Pulsatile  
Ventricular Assist Device  
Stijn Vandenberghe, PhD - University of Bern
- 3 In-Vivo Performance Study of a Durable  
Cardiopulmonary Support System Consisting of a  
Hydrodynamically Levitated Centrifugal Pump  
Tomonori Tsukiya, Deng - Nat'l Cerebral & Cardiovasc Ctr
- 4 A Single Center Experience with TPA Administration  
for LVAD Thrombus  
Edwin McGee, Jr., MD - Northwestern Memorial  
Hospital/ Northwestern University School of Medicine
- 5 Clinical Outcomes in Older Patients with Continuous  
Flow Left Ventricular Assist Devices  
Geetha Bhat, MD, PhD, Advocate Christ Medical Center
- 6 Outcomes for Heart Mate II Continuous-Flow Left  
Ventricular Assist Device Patients Stratified by  
Severity of Clinical Status  
Jens Garbade, MD, PhD - University of Leipzig

# THURSDAY, JUNE 14 (CONTINUED)

## POSTER BOARD #

- 7 **Elastance-Driven Mock Circuit Controlled with Variable Arterial Capacitance and Resistance**  
*E G Eken, BS - Bahcesehir University*
- 8 **Pulsatile Cardiopulmonary Bypass Augments Hemodynamic Energy Comparable to That of the Native Circulation**  
*Ricardo A Bello, MD, PhD - Montefiore Medical Center*
- 9 **Effects of Hemodilution with Crystalloids and Colloids on RBC Vasodilatory Signaling and Oxygen Affinity**  
*Jan Simoni, DVM, PHD - Texas Tech University Health Sciences Center*
- 10 **Pump Flow Estimation from Pressure Head and Power Uptake for the HeartAssist 5, the HeartMate II and the HeartWare VADS**  
*Kim Pennings, MSc - Academic Medical Centre*
- 11 **A New Transcutaneous Communication System Using Human Body as Transmission Medium for Monitoring Implanted Artificial Heart**  
*Eiji Okamoto, PhD - Tokai University*
- 12 **Comparison of Implant Site Effect on Extra-Vascular Counterpulsation Efficacy**  
*Pong-Jeu Lu, PhD - National Cheng Kung University*
- 13 **Circadian Variation of Motor Current Could Be Observed in Fixed Rotation Speed Centrifugal-Continuous Flow LVAD Support**  
*Kenji Suzuki, MD - Tokyo Women's Medical University*
- 14 **Hydrodynamic Bearing for the Helical Flow Total Artificial Heart**  
*Kohei Ishii - The University of Tokyo - ASAIOfyi*
- 15 **Simulation of Cardiovascular Conditions and Critical Events in a Fully Automated Mock Circulatory loop.**  
*Charles E Taylor, PhD - Virginia Commonwealth University - ASAIOfyi*
- 16 **Right Heart Failure after Continuous Flow LVAD Implant: Intraoperative Management Techniques for Prevention**  
*Tadashi Motomura, MD, PhD - The Methodist Hospital*
- 17 **Weighted Method To Predict Damage in Medical Devices**  
*Samuel J Hund, PhD - Carnegie Mellon University*
- 18 **Predictive Valve of the Model for End Stage Liver Disease (MELD) Score in Patients Undergoing Left Ventricular Assist Device (LVAD) Implantation**  
*Salil V Deo, MS, MCH - Mayo Clinic*
- 19 **Ventricular Assist Device (VAD) Paracorporeal and Totally Implantable Insertion Technique**  
*Danilo R Galantini - Dante Pazzanese*
- 20 **Investigation of Left Right Flow Balancing Approaches of the Reinheart Total Artificial Heart**  
*Marco Laumen, Dipl.-Ing. - RWTH Aachen - University*
- 21 **First-Time Flow Visualization of Transcatheter Aortic Valve-in-Valve**  
*Ahmad Falahatpisheh - University of California, Irvine - ASAIOfyi*
- 22 **Agent Based Modeling of the LVAD Population: Predicting Outcomes**  
*Nathanael O Mason, MBA Presentation Cancelled*
- 23 **Use of Impella® as an Adjunct for Left Ventricular Unloading during ECMO support and as a Bridge to HeartMate® II Left Ventricular Assist Device in Acute Cardiogenic Shock**  
*Allen Cheng, MD - University of Rochester*

## POSTER BOARD #

- 24 **Single Center Experience with Ring Thrombus Formation on Inlet Bearing with Axial Flow Left Ventricular Assist Device**  
*Mark Slaughter, MD - University of Louisville - Jewish Hospital*
- 25 **Factors Contributing to Insufficient Therapeutic Response to Clopidogrel Antiplatelet Therapy in PCI Patients**  
*Jan Simoni, DVM, PHD - Texas Tech University Health Sciences Center*
- 26 **Aortic Occlusion during Extracorporeal Assisted Organ Perfusion in Donors after Cardiac Prevents Cerebral Perfusion**  
*David S Demos, MD - University of Michigan - ASAIOfyi*
- 27 **Importance of Linguistic Details in Messages for the Safety of VADs**  
*Heinrich Schima, PhD - Med. Unvi. Vienna Austria*
- 28 **Non-Cardiac Surgery (NCS) in Patients with a Ventricular Assist Device**  
*Juliane Viereck - Deutsches Herzzentrum Berlin*

## BIOENGINEERING TRACK

**1:30PM - 3:00PM** Pavilion Room - Lobby Level

### BIOENGINEERING 1: APPLIED BIOMATERIALS AND NANOMEDICINE

**Co-Chairs:** *Thomas Webster, PhD, Associate Professor Engineering, Orthopedics, Brown University*  
*Huinan Liu, PhD, Assistant Professor, Biomedical Engineering, Brown University*

**1:30PM** **Nano: Nano-Micro And Micro Based Structures For Regenerative Engineering**  
*Cato Laurencin, MD, PhD, Director Institute Regenerative Eng, Univ Conn*

**2:00PM** **Nanotechnology: Small Materials Meeting Big Medical Challenges**  
*Thomas Webster, PhD, Associate Professor Engineering, Orthopedics, Brown University*

**2:30PM-2:45PM** **Bioengineering the Vasculature of Renal Allografts To Prevent Immune Activation: "Immunocloaking"**  
*Lauren Brasile, PhD - BREONICS, Inc.*

**2:45PM-3:00PM** **Fibrinogen Activity and Platelet Adhesion on Biomaterial Surfaces**  
*Christopher A Siedlecki - Penn State College of Medicine*

## BIOENGINEERING POSTER SESSION 1

Posters Available All Day in the Grand Ballroom

## POSTER BOARD #

- 29 **Initial Biocompatibility Evaluation of the Continuous-Flow Total Artificial Heart in a Calf**  
*Mariko Kobayashi, MD - Lerner Research Institute, Cleveland Clinic - ASAIOfyi Fellowship Recipient*
- 30 **Imidazole Cyclodextrin as an Antidote for Acute Cyanide Poisoning**  
*Akira T Kawaguchi, MD, PhD - Tokai University School of Medicine*

## POSTER BOARD #

- 31 **CFD Analysis of Evaluation Method of Coronary Artery Stenosis by Measuring Coronary Artery Pressure**  
*Saeka Sunohara, M.Eng. - Toin University of Yokohama*
- 32 **Internal Carotid and Renal Artery Blood Flow Measurement of a Pulsatile Flow Centrifugal Pump Total Artificial Heart in Animals**  
*Takuya Shiga, MD - Institute of Development, Aging and Cancer, Tohoku University*
- 33 **Therapeutic Use of Liposome-Encapsulated Hemoglobin Alleviates Hearing Loss after Transient Cochlear Ischemia and Reperfusion in the Gerbil**  
*Akira T Kawaguchi, MD, PhD - Tokai University School of Medicine*
- 34 **Investigation of the Use of PIV To Visualize Flow within Different Types of Venous Air Trap Chamber**  
*Shinobu Yamauchi, M.Eng. - Toin University of Yokohama*
- 35 **Development of a Hydraulic Mock Circulatory System**  
*Feng Huang - The State Key Laboratory of Fluid Power Transmission and Control*
- 36 **Computational Model for Actuator of the Implantable Centrifugal Blood Pump**  
*Eduardo Bock, PhD - Federal Institute of Technology, Brazil*
- 37 **Direct Histopathology Examination of Long-Term Drug Eluting Stent Implants**  
*Aaron W Roberts, MS - Texas A&M University - ASAIOfyi*
- 38 **Non-Invasive Evaluation of Stenosis Using Vascular Access Based on Quantitative Shunt Murmur Analysis**  
*Toshio Sato, PhD - Toin University of Yokohama*
- 39 **Experimental Investigation of Recirculation Ratio during Reverse Connection of DLCs with Different Tip Shapes**  
*Hideki Ishigaki, M.Eng. - Toin University of Yokohama*
- 40 **A New Brazilian Left Ventricle Assist Device (LVAD): Concept, Anatomical and In Vitro Studies**  
*Bruno Utiyama da Silva - Institute Dante Pazzanese of Cardiology*
- 41 **A New Surgical Technique for Aorta Cannulation of Implantable Centrifugal Blood Pump**  
*Eduardo Bock, PhD - Federal Institute of Technology in Sao Paulo - ASAIOfyi*
- 42 **Response of the SynCardia TAH Pneumatic Drivers to Afterload Challenge on a Mock Loop**  
*Daniel G Tang, MD - Virginia Commonwealth University*
- 43 **Flow Dynamics and Hemocompatibility of an Apical Left Ventricular Cannula**  
*Kevin G Soucy, PhD - Univeristy of Louisville - ASAIOfyi*
- 44 **Continuous Versus Pulsatile Flow for Left Ventricle Assist Devices: Performance Evaluation in a Hybrid Cardiovascular Simulator**  
*Jeison WG Fonseca, MSc. - Institute Dante Pazzanese of Cardiology*
- 45 **Effects of Shear Rate on Thrombus Formation Rate for Pipe Orifice Flows Using Laser Sheet Visualization Method**  
*Masaaki Tamagawa, Dr. Eng. - Kyushu Institute of Technology*
- 46 **An In Vitro Fluid Dynamic Study of a Continuous Flow Device in Relation to Acquired von Willebrand Syndrome**  
*Ryan A Lani - The Pennsylvania State University*

## PULMONARY TRACK

**1:30PM - 3:00PM** Crystal Room - Lobby Level

### PULMONARY 1: AMBULATORY ECMO / ARTIFICIAL LUNG

- Chairman:** *Charles Hoopes, MD, Director Thoracic Transplant Program, University of Kentucky*
- ECMO As Bridge to Transplant: The University of Pittsburgh Experience**  
*Christian Bermudez, MD, Assistant Professor CT Surg, University of Pittsburgh*
- Evolution Of Bridging Strategies For Pulmonary Transplantation: The UCSF Experience**  
*Jasleen Kukreja, MD, Asst Prof in Residence, Univ of California San Francisco*
- Rethinking ECMO in Pulmonary Transplantation and ALI**  
*Charles Hoopes, MD, Director Thoracic Transplant Program, University of Kentucky*

## RENAL TRACK

**1:30PM-3:00PM** California Room - Mezzanine Level

### RENAL 1: MAN AND MACHINE: PATIENT AND TECHNICAL BARRIERS IN HOME HEMODIALYSIS

- Chairman:** *Paul Brakeman, MD, Asstistant Professor Pediatrics, University of California San Francisco*
- Patient Barriers To Home Dialysis**  
*Christopher Chan, MD, Deputy Director Nephrology, University Health Network*
- The Patient And Technical Requirements For Home Dialysis**  
*Robert Lindsay, MD, Professor of Medicine, University Western Ontario*
- The U.S. Experience In Home Hemodialysis**  
*Brigitte Schiller, MD, Chief Medical Officer, Satellite Healthcare*

### VISIT EXHIBITS & POSTERS - ENJOY REFRESHMENTS

**3:00PM-3:45PM** Grand Ballroom

## CARDIAC TRACK

**3:45PM-5:30PM**

### CARDIAC 2: PRO - CON DEBATE: VADS IN LESS ILL COHORT

- 3:45PM-4:25PM** Venetian Room - Lobby Level
- Co-Chairs:** *Edwin McGee, MD, Surgical Director Heart Tx & Mech Assistance, Northwestern Memorial Hospital*  
*Jennifer Cowger, MD, Assistant Professor, University of Michigan*
- Pro:** *Keith Aaronson, MD, Medical Director Internal Medicine, University of Michigan*
- Con:** *Edwin McGee, MD, Surgical Director, Heart Tx & Mech Assistance, Northwestern Memorial Hospital*

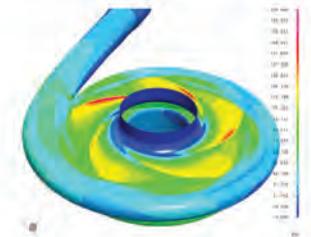
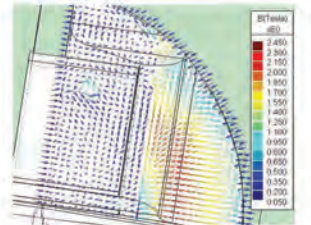
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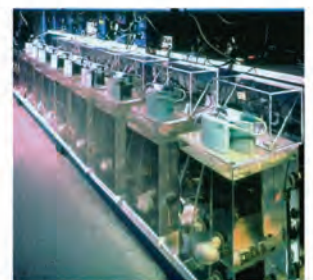
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## THURSDAY, JUNE 14 (CONTINUED)

### CARDIAC 2: SYMPOSIUM - SURGICAL TECHNIQUES OF VAD IMPLANTATION

#### 4:25PM-5:30PM

##### Tricuspid Repair: Is It Necessary?

Aly El Banayosy, MD, Medical Director of MCS Prog, Penn State Hershey College of Med

Aortic Valve insufficiency: When To Do It And How  
Walter Dembitsky, MD, Director Cardiac & Mech Circ Support, Sharp Memorial Hospital

##### Off Pump Implant, How Often Should It Be Done And Is It Worth It?

Benjamin Sun, MD, Chair CT Surgery, Minneapolis Heart Institute

### BIOENGINEERING TRACK

#### 3:45PM-5:30PM Pavilion Room - Lobby Level

### BIOENGINEERING 2: ANTI-THROMBOGENIC SURFACES

Co-Chairs: Christopher Siedlecki, PhD, Associate Professor Bioengineering & Surgery, Penn State University  
Michael Navitsky, BS, Research Assistant Bioeng, Pennsylvania State University

3:45PM Non-Elutable And Elutable Therapeutic Agents To Develop Thromboresistant Stents  
Vipul Dave, PhD, Engineering Fellow, Johnson & Johnson

4:15PM Load Capacity And Durability Of DLC Coated LVAD Bearings  
Said Jahanmir, PhD, CEO, MiTiHeart Corporation

4:45PM-5:00PM A System for Real Time Visualization of Platelet Deposition onto Opaque Surfaces Using Hemoglobin Depleted Blood  
Megan A Jamiolkowski, BBE - University of Pittsburgh - ASAIOfyi Fellowship Recipient

5:00PM-5:15PM An Improved Method To Attenuate Thrombosis by Nitric Oxide Secreting Polymers  
Hitesh Handa - University of Michigan - ASAIOfyi

5:15PM-5:30PM Visualizing Distributions of Platelets and Fibrin on Retrieved LVAS Blood Sacs  
Christopher Siedlecki - Penn State College of Medicine

### PEDIATRIC TRACK

#### 3:45PM-5:30PM International Room - Mezzanine Level

### PEDIATRIC 1: PEDIATRIC VAD SUPPORT

Co-Chairs: Keefe Manning, PhD, Associate Professor Bioengineering, Pennsylvania State University  
David Morales, MD, Executive Co-Director, The Heart Institute

3:45PM-4:00PM Bivalirudin and Epoprostenol Infusions as an Alternative Anticoagulation Strategy in Pediatric Patients on Long-Term Berlin Heart EXCOR Ventricular Assist Device Support  
Jennifer Rutledge, MD - University of Alberta

4:00PM-4:15PM Biocompatibility Testing of the Frozen Design PediaFlow® Pediatric VAD  
Salim E Olia, BS - University of Pittsburgh - ASAIOfyi

#### 4:15PM-4:30PM

Acute In-Vivo Evaluation of CircuLite Child Cannula Concepts  
Arielle Drummond, PhD - CircuLite, Inc. - ASAIOfyi

#### 4:30PM-4:45PM

Impella Pediatric Design Optimization and In Vivo Results  
Caitlyn J Hastie, MS - Abiomed, Inc. - ASAIOfyi

#### 4:45PM-5:00PM

Mechanical Support of the Failing Fontan Circulation with a Continuous Axial-Flow Pump in a Piglet Model  
Xufeng Wei, MD, PhD - ASAIOfyi - University of Maryland

#### 5:00PM-5:15PM

Intravascular Mechanical Cavopulmonary Assistance of 3-D Patient-Specific Fontan Configurations  
Emily Downs, BS, Va. Commonwealth University

#### 5:15PM-5:30PM

A Chronic Peristaltic Cavopulmonary Support Device for Univentricular Fontan Circulation  
Guruprasad A Giridharan, PhD - University of Louisville

### RENAL TRACK

#### 3:45PM-5:30PM California Room - Mezzanine Level

### RENAL 2: NOVEL TECHNOLOGIES FOR PATIENT MONITORING

Chairman: Balazs Szamosfalvi, MD, Staff Physician, Henry Ford Hospital

Online Citrate-And Calcium Sensing During Regional Citrate Anticoagulation  
Balazs Szamosfalvi, MD, Staff Physician, Henry Ford Hospital

The Nano Clinical Analyzer: Nanosensors For Continuous Physiological Monitoring  
Heather Clark, PhD, Associate Professor Pharmaceutical Science, Northeastern University

Inline And Implantable Optical Sensors For Biochemical Monitoring  
Mike McShane, PhD, Associate Professor Biomedical Engineering, Texas A & M University

Smart Sensor Systems For Human Breath Monitoring  
Gary Hunter, PhD, Sr Electronics Engineer, NASA Glenn Research Center

### ASAIO WELCOME RECEPTION

#### 6:00PM-7:00PM Crown Room - 24th Floor Admission by Ticket

## FRIDAY, JUNE 15

### ASAIOfyi FOR YOUNG INNOVATORS

#### 8:00AM - 10:00AM California Room - Mezzanine Level

Co-Chairs: Amy Throckmorton, PhD, Qimonda Asst Prof MechEng, VA Commonwealth University  
Scott Corbett, PhD, Director Systems Engineering, Abiomed Inc.

ASAIOfyi Rapid Fire Presentations - These Presentations will be Available As Posters on the Grand Ballroom Level

#### POSTER BOARD #

47 8:00AM-8:06AM Ventricular Septum Shift by Continuous-Flow LVAD Pumping and Its Correction by Beat to Beat Rotational Speed Control  
Mamoru Arakawa, MD - National Cerebral and Cardiovascular Center

# FRIDAY, JUNE 15 (CONTINUED)

## POSTER BOARD #

- 48 **8:06AM-8:12AM**  
Prevention of Aortic Insufficiency in a Continuous-flow LVAD by Changing Rotation Speed in Synchronization with the Cardiac Beat  
*Yuichiro Kishimoto, MD - National Cerebral and Cardiovascular Center Research Institute - ASAIOfyi*
- 49 **8:12AM-8:18AM**  
In Vitro Evaluation of a Novel Autologous Aortic Valve (BIOVALVE) with a Special Pulsatile Circulation Circuit  
*Hirohito Sumikura, PhD - National Cerebral and Cardiovascular Center Research Institute*
- 50 **8:18AM-8:24AM**  
The Effects of Air Exposure & Negative Pressure on Human Blood Inflammatory Response & Platelet Activation  
*Ahmed M El-Sabbagh, MD - University of Michigan*
- 51 **8:24AM-8:30AM**  
3D Anatomic Modeling of LVAD Inflow Cannula Orientation  
*Thang V Truong - Integris Baptist Medical Center*
- 52 **8:30AM-8:36AM**  
A Case Series Evaluation of the Impella 5.0 Peripheral Left Ventricular Assist Device  
*Daniel Rinewalt, MD - Northwestern University, Feinberg School of Medicine, Bluhm*
- 53 **8:36AM-8:42AM**  
Safe Dose Study of the Intravascular Infusion of a Perfluorocarbon Based Oxygen Carrier in a Swine Model  
*Daniel Ortiz, BSc - Biomedical engineering, Universidad de los Andes - ASAIOfyi*
- 54 **8:42AM-8:48AM**  
Wave travel in the Thoraco-Abdominal Aorta with ECG Synchronized Thoratec PVAD  
*Stijn Vandenbergh, PhD - Bern University*
- 55 **8:48AM-8:54AM**  
Continuous Monitoring of Heart Rate and Its Variability in Rotary Blood Pump Recipients  
*Francesco Moscato, PhD - Medical University of Vienna - ASAIOfyi*
- 56 **8:54AM-9:00AM**  
Serial Right Ventricular Evaluation after LVAD Implantation. Implications for Candidate Selection and Left Ventricular Recovery  
*Dan D Le, MD - University Of Alabama at Birmingham Presentation Cancelled*
- 57 **9:00AM-9:06AM**  
Temporary Ventricular Assist Devices as a Bridge to Long-Term Support: Are They Effective?  
*Sean P McCandless - Intermountain Medical Center - ASAIOfyi Fellowship Recipient*
- 58 **9:06AM-9:12AM**  
Cardiac Ablation Procedures Supported by Temporary Ventricular Assist Devices (VAD)  
*Annicka Carter, Bioeng Research Associate, Intermountain Medical Center - ASAIOfyi*
- 59 **9:12AM-9:18AM**  
Comparison of Fluid Dynamic Numerical Models and Experimental Validation for a Clinical Ventricular Assist Device  
*Jiafeng Zhang, PhD - University of Maryland School of Medicine - ASAIOfyi*

## POSTER BOARD #

- 60 **9:18AM-9:24AM**  
Combined Use of TandemHeart (TH) Percutaneous Ventricular Assist Device (PVAD) and Stereotaxis Magnetic Navigation (SMN) During Ablation Procedure  
*Annicka Carter, Bioeng Research Associate, Intermountain Medical Center - ASAIOfyi*
- 61 **9:24AM-9:30AM**  
Hepatic Input Impedances as a Measure of Liver Graft Perfusion Properties  
*Charlotte Debbaut, PhD student - Ghent University - ASAIOfyi*
- 62 **9:30AM-9:36AM**  
Platelet Adhesion to a Polyurethane Urea Surface under Altered Shear Exposure  
*Michael A Navitsky - The Pennsylvania State University - ASAIOfyi*
- 63 **9:36AM-9:42AM**  
An Alternative Membrane To Improve Extracorporeal Gas Exchange and Biocompatibility  
*Matthew LaVelle - Columbia University*
- 64 **9:42AM-9:48AM**  
Design, Manufacture and Application of Hollow Polymer Microneedles for Sampling Interstitial Fluid in Kidney Disease  
*Leonard M Ebah, MD - Manchester Royal Infirmary - ASAIOfyi Fellowship Recipient*
- 65 **9:48AM-9:54AM**  
Circulating Plasma Microvesicles (MVs) in Sepsis Are Potential Biomarkers and Mediators of Tissue Injury and Are Not Efficiently Removed by Standard Convective Techniques  
*Vincenzo Cantaluppi, MD - University of Turin*
- 66 **9:54AM-10:00AM**  
Pediatric VAD Therapy in Failing Univentricular Hearts: Single Center Experience  
*Christopher S Almond, MD, MPH - Children's Hospital Boston*

## GENERAL SESSION 2

**8:00AM - 12:15PM** Gold Room - Lobby Level  
Co-Sponsored By Kurt A Dasse, PhD and Johnson & Johnson  
Co-Chairs: H. David Humes, MD, ASAIO President, Professor Internal Medicine, University of Michigan  
Kurt Dasse, PhD, Executive VP, GeNO LLC & COO Pharos LLC

## NEW VENTURE FORUM - THE FIRST ANNUAL "MEDICAL DEVICE ENTREPRENEUR'S FORUM".

**8:00AM - 10:00AM**  
This Session Is Designed To Allow Award Winning Entrepreneurs to Present Innovative Medical Device Technologies.

### NFV FINALISTS

James Antaki, PhD, Professor of Biomedical Engineering, Carnegie Mellon University  
"mParesis™ Blood Purification Device For Severe Malaria"

Nicholas Franano, MD, Novita Therapeutics, LLC  
"New Medical Device to Improve Eligibility And Reduce Maturation Failure Of Arteriovenous Fistula Vascular Access Sites For Hemodialysis"

Pedram Mohseni, PhD, Director Bio Micro Systems Lab, Case Western Reserve University  
"Neural Prosthetic Microdevice And Associated Methods For Brain Repair"

## FRIDAY, JUNE 15 (CONTINUED)

### NVF PANELISTS:

Eric Chen, MS, Director Humanitarian Use Devices, FDA  
Edward Berger, PhD, Principal, Larchmont Strategic Advisors  
Tracy Warren, MBA, General Partner, Battelle Ventures LP  
Elyssa Campbell, MIT Sloan School of Management  
Jeff Calcagno, MD, Senior Dir Emerging Technology, Johnson & Johnson  
Brian Duncan, MD, MBA, Venture Partner, Arboretum Ventures

### VISIT EXHIBITS & POSTERS - ENJOY REFRESHMENTS

10:00AM - 10:45AM Grand Ballroom

### GENERAL SESSION 2 CONTINUED

#### 10:45AM - 11:15AM

ASAIO Hastings Lecture - Are We There Yet?  
Gerson Rosenberg, PhD, Professor Surgery & Bioengineering, Penn State College of Medicine



#### 11:15AM - 11:45AM

President's Address - ASAIO: Maturation, Apoptosis, and Social Network  
H. David Humes, MD, ASAIO President, Professor Internal Medicine, University of Michigan

#### 11:45AM-12:15PM

ASAIO Fellowship Recipients recognized

### LUNCH BREAK

#### 12:15PM - 1:30PM

### ASAIOFYI LUNCHEON FOR ASAIOFYI MEMBERS - CAREER DEVELOPMENT

#### Admission by Ticket Only

12:15PM - 1:15PM Garden Room - Lobby Level

Academia: Keefe Manning, PhD, Associate Prof Bioengineering, Pennsylvania State University

Government: Carole Carey, FDA

Industry: Kevin Bourque, MSMME, Director Research & Development, Thoratec Corporation

Clinical: Jonathan Haft, MD, Assistant Professor Surgery, University of Michigan

### CARDIAC TRACK

1:30PM-3:15PM Venetian Room - Lobby Level

### CARDIAC 3: PHYSIOLOGIC ADAPTATION TO VADS

Co-Chairs: Francesco Moscato, PhD, Postdoctoral Fellow, Medical University Of Vienna  
Georg Wieselthaler, MD, Professor Clinical Surgery, University of California San Francisco

1:30PM Pulsatile Control Of Continuous Flow Pumps  
Steven Koenig, PhD, Professor Bioengineering & Surgery, University Of Louisville

1:45PM Intrinsic Physiologic Control Mechanisms  
Francesco Moscato, PhD, Postdoctoral Fellow Med Physics & Biomed Engineering, Medical University Of Vienna

2:00PM Inter - Pump Control Of Dual Continuous Flow Total Artificial Heart  
Steven Parnis, BS, Assistant Director Tech Development, Texas Heart Institute

2:15PM Reverse Remodeling With VAD Therapy: Is It The Drugs Or Is It The Pump?  
Eduardo Rame, MD, Medical Dir Mechanical Circ Support, Univ of Pennsylvania

2:30PM-2:45PM Optimizing Heartmate II (HMII) Speed at Post-Implant Discharge: How Important Is It?  
Renee A Merchel - Intermountain Medical Center - ASAIOfyi

2:45PM-3:00PM Effect of Rotary Blood Pump Pulse Characteristics on Cardiac Workload  
Tohid Pirbodaghi - Bern University

3:00PM-3:15PM Is There a Difference in Structural Remodeling between Ischemic & Non-Ischemic Patients Who Undergo LVAD Implantation?  
Ana M Segura, MD - St. Luke's Episcopal Hospital

### BIOENGINEERING TRACK

1:30PM-3:15PM Pavilion Room - Lobby Level

### BIOENGINEERING 3: BLOOD DAMAGE AND THROMBOSIS MODELING

Co-Chairs: Kenneth Solen, PhD, Professor of Chemical Engineering, Brigham Young University  
Katherine Fraser, PhD, Marie Curie Fellow, Imperial College, London

1:30PM Optimizing The Thrombogenic Performance Of Mechanical Circulatory Support Devices  
Daniel Bluestein, PhD, Professor Biomed Eng, SUNY Stony Brook

1:55PM Blood Damage  
Zhongjun Wu, PhD, Assoc Prof Surg, Univ Maryland School of Medicine

2:20PM A Model Of Thrombosis And Thromboembolism  
Kenneth Solen, PhD, Professor of Chemical Eng, Brigham Young Univ

2:45PM-3:00PM Shear Induced Platelet Activation and Signal Transduction  
Shuqiong Niu, MD - University of Maryland School of Medicine - ASAIOfyi

3:00PM-3:15PM The Effect of Turbulent Viscous Shear Stress on Red Blood Cell Hemolysis  
Jen-Hong Yen, MS - Tamkang University, Taiwan - ASAIOfyi

### PEDIATRIC TRACK

1:30PM-3:15PM International Room - Mezzanine Level

### PEDIATRIC 2: PEDIATRIC ECMO / ECLS

Chairman: Timothy Maul, PhD, Research Asst Prof CV Surgery, University of Pittsburgh

1:30PM-1:45PM Neonatox: A Pumpless Extracorporeal Lung Support for Premature Infants  
Jutta Arens - RWTH Aachen University

## FRIDAY, JUNE 15 (CONTINUED)

### 1:45PM-2:00PM

In-Vivo Hemocompatibility of Heparinized Hollow Fiber Membranes of the Pediatric Pump-Lung (PEDIPL) Device

Narayana Garimella, PhD - University of Maryland Baltimore - ASAIOfyi

### 2:00PM-2:15PM

Platelet-Derived Microparticle Generation of ECMO Systems at Simulated Flow Rates for Neonates

Andrew D.J. Meyer, MD, MS - UT Health Science Center - ASAIOfyi

### 2:15PM-2:30PM

Design and Development of ECMO (Extra-Corporeal Membrane Oxygenation) for Newborn Respiratory Failure

Tomoya Shibata, BS - Tokyo Denki University

### 2:30PM-2:45PM

Development of a Pediatric Oxygenator with Integrated Pulsatile Pump and Heat Exchanger

Ralf Borchardt, Dipl.-Ing. - RWTH Aachen - ASAIOfyi

### 2:45PM-3:00PM

Development of Artificial Placenta VI: Cerebral Perfusion Is Maintained in Venovenous Extracorporeal Life Support Lamb Model

Ahmed M El-Sabbagh, MD - University of Michigan

### 3:00PM-3:15PM

In Vitro Drug Adsorption of Anti-Arhythmic Agents in a Neonatal Extracorporeal Life Support Circuit

Andrew D Meyer, MD, MS - University of Texas Health Science Center at San Antonio - ASAIOfyi

## PEDIATRIC POSTER SESSION

Posters Available All Day in the Grand Ballroom

### POSTER BOARD #

- 67 In-Vivo Animal Studies in an Ovine Model Using the Circulite Child System  
Robert Farnan - Circulite Inc.
- 68 Predicting Exercise Tolerance in Patients with Bidirectional Glenn: A Coupled Lumped Parameter-Oxygenation Model  
Carolina Vallecilla, PhD - Universidad de los Andes
- 69 Pediatric Intra-Operative Fit Study Using the CircuLite Child System  
Arielle Drummond, PhD - CircuLite, Inc. - ASAIOfyi
- 70 Animal Models for Evaluation of the Pediatric Ventricular Assist Devices  
Xufeng Wei, MD, PhD - University of Maryland - ASAIOfyi
- 71 Twisted Cardiovascular Cages for Intravascular Axial Flow Blood Pumps To Support the Fontan Physiology  
Amy L Throckmorton, PhD - Virginia Commonwealth University - ASAIOfyi
- 72 Analysis of Hydraulic and Hemolytic Performance of an Axial Blood Pump  
Fangqun Wang, doctor - Jiangsu University  
Presentation Cancelled
- 73 Progress on the Development of a Pediatric Ventricular Assist Device in Brazil  
Idagene A Cestari, PhD - Heart Institute (InCor)
- 74 Administration of Antithrombin Concentrate in Infants and Children on ECLS Improves Anticoagulation Efficacy  
Patricia Massicotte, MD, MS, Professor Pediatrics, University of Alberta

## COMMERCIALIZATION

### 1:30PM-3:15PM Fountain Room - Lobby Level

Co-Chairs: Pratap Khanwilkar, PhD, MBA, Director Coulter Program, University Of Pittsburgh  
Brian Duncan, MD, MBA, Venture Partner, Arboretum Ventures

Entrepreneur/Developer/University Perspective  
Pratap Khanwilkar, PhD, MBA, Director Coulter Program, University Of Pittsburgh

VC Funding & Clinician/Clinical System Perspective  
Brian Duncan, MD, MBA, Venture Partner, Arboretum Ventures

Reimbursement Perspective  
Edward Berger, PhD, Principal, Larchmont Strategic Advisors

VC Funding Perspective  
Tracy Warren, MBA, General Partner, Battelle Ventures LP

## VISIT EXHIBITS & POSTERS - ENJOY REFRESHMENTS

### 3:15PM-4:00PM Grand Ballroom

## CARDIAC TRACK

### 4:00PM-5:45PM

## CARDIAC 4: PRO - CON DEBATE: ARE VAD'S ECONOMICALLY VIABLE?

### 4:00PM-4:40PM Venetian Room - Lobby Level

Co-Chairs: Jonathan Haft, MD, Assistant Professor Surgery, University of Michigan  
Mark Slaughter, MD, Chief Thoracic & CV Surgery, University of Louisville

Pro - Robin Bostic, BS, VP Health Policy & Govt Affairs, Thoratec Corporation

Con - Mark Slaughter, MD, Chief Thoracic & CV Surgery, University of Louisville

## CARDIAC 4: SYMPOSIUM: TEMPORARY CIRCULATORY SUPPORT

### 4:40PM-5:45PM

TandemHeart  
Biswajit Kar, MD, Interventional Cardiologist, Texas Heart Institute

Impella  
Anson Cheung, MD, Surgical Dir of Cardiac Surgery & Mech Circulatory Support, Univ British Columbia

ECMO  
Jonathan Haft, MD, Asst Professor or Surgery, University of Michigan

## BIOENGINEERING TRACK

### 4:00PM-5:45PM Pavilion Room - Lobby Level

## BIOENGINEERING 4: COMPUTERS AND EXPERIMENTS: PREDICTION AND VALIDATION

Co-Chairs: Steven Chopski, MS, Research Assistant, VA Commonwealth University  
Steven Koenig, PhD, Professor of Bioengineering, University of Louisville

### 4:00PM-4:15PM

Computational Analysis of Blood Flow and Emboli To Understand Retinal Artery Occlusion  
Tim A. S. Kaufmann, Dipl Phys - Institute of Applied Medical Engineering - ASAIOfyi

# FRIDAY, JUNE 15 (CONTINUED)

## 4:15PM-4:30PM

Numerical Study of the Effect of Flow Pulsation on the Hemolysis in Centrifugal Blood Pumps  
Huan Li - The State Key Laboratory of Fluid Power Transmission and Control

## 4:30PM-4:45PM

Comparison of CFD Predicted and PIV Measured Flow Dynamics of MVAD® Pump  
M. Ertan Taskin, PhD - HeartWare Inc.

## 4:45PM-5:00PM

Accuracy of Flow in a Stenotic Nozzle Using Grid Convergence Index and Robust Simulation  
Samuel J Hund, PhD - Carnegie Mellon University

## 5:00PM-5:15PM

Feasibility of Fluid Structure Interaction Simulations as a Design Tool of a Pulsatile Total Artificial Heart  
Simon J Sonntag, Dipl. Math. - RWTH Aachen - ASAIOfyi

## 5:15PM-5:30PM

Flow Weighted Residence Time: A Useful Indicator of Hemolysis  
Katharine H Fraser, PhD - Imperial College London - ASAIOfyi

## 5:30PM-5:45PM

Thrombus Deposition within a Penn State 50cc Left Ventricular Assist Device: Comparing Experimental Fluid Mechanics, CFD and In Vivo Experiments  
Stephen Topper - The Pennsylvania State University - ASAIOfyi

## PULMONARY TRACK

4:00PM-5:45PM Crystal Room - Lobby Level

### PULMONARY 2: CHRONIC AND ACUTE HYPERCAPNIC FAILURE - MANAGEMENT WITH LOW FLOW CO<sub>2</sub> DEVICES

Co-Sponsored By ALung Technologies

Chairman: Daniel Brodie, MD, Assistant Professor Clinical Medicine, Columbia University

Clinical Applications And Goals of Care  
Andriy Batchinsky, MD, Senior Research Scientist, US Army Institute Surgical Research

Device Availability  
Marco Ranieri, MD, Chairman Anesthesia & Intensive Care, Giovanni Battista Molinette Hospital, Turin

ECCO<sub>2</sub>R For Preventing Intubation In Patients with Exacerbated COPD: Results Of The Hemolung Pilot Study  
Werner Schmidt, MD, PhD, Physician Anesthesiology, University of Heidelberg, Germany

### PULMONARY POSTER SESSION

Posters Available All Day in the Grand Ballroom

## POSTER BOARD #

- 75 In-Parallel Attachment of a Low Resistance Compliant Thoracic Artificial Lung under Rest and Simulated Exercise  
Christopher Scipione, MD - University of Michigan
- 76 Design and In Vitro Assessment of an Improved, Low-Resistance, Compliant Thoracic Artificial Lung  
David Skoog - University of Michigan

## POSTER BOARD #

- 77 Outcomes of Venovenous Extracorporeal Membrane Oxygenation in Patients with Respiratory Failure  
Tae-Hun Kim, MD - Seoul National University Bundang Hospital, South Korea
- 78 Use of Both Bi-Caval DLC Lumens for Drainage To Convert VV ECMO to VA ECMO  
Qiang Hu, MD - University of Kentucky College of Medicine
- 79 Transport ECMO and Bridge to Transplant with the Cardiohelp System®  
Julissa E Jurado, MD - Columbia University Medical Center - New York Presbyterian
- 80 Management of ECMO Patients with Aortic Root Thrombus  
Chadrick Cross, MD - Cardiothoracic & Vascular Surg Assoc, S.C
- 81 Three Embodiments for an Aqueous Lung Machine  
Mohamed W Elnachef, MD - SIOF Institute

## RENAL TRACK

4:00PM-5:45PM California Room - Mezzanine Level

### RENAL 3: INNOVATIVE APPROACHES TO EXTRACORPOREAL RENAL SUPPORT WITH IMMEDIATE CLINICAL APPLICABILITY

Chairman: Balazs Szamosfalvi, MD, Staff Physician, Henry Ford Hospital

4:00PM Online Blood Volume, Hemoglobin And Oxygen Saturation Sensing During CRRT  
Lenar Yessayan, MD, Staff Physician, Henry Ford Hospital

4:30PM Novel Acid And Bicarbonate Concentrations For A Large Dialysis Program With Regional Citrate Anticoagulation  
Balazs Szamosfalvi, MD, Staff Physician, Henry Ford Hospital

5:00PM-5:15PM High Cut-Off (HCO) Hemodialyzers Efficiently Remove Immunoglobulin Free Light Chains (FLC) and Reduce Tubular Epithelial Cell (TEC) Injury Induced by Plasma of Patients with Multiple Myeloma (MM)  
Vincenzo Cantaluppi, MD - University of Turin

5:15PM-5:30PM Development of a Multifunctional Detoxifying Unit for Liver Failure Patients  
Kyungsoo Lee, Ph.D. - ASAIOfyi Fellowship Recipient

5:30PM-5:45PM In Vitro Feasibility Assessment of a Mobile System To Initiate Acute Cardio/Pulmonary/Renal Assistance  
George M Pantalos, PhD - University of Louisville

### RENAL POSTER SESSION

Posters Available All Day in the Grand Ballroom

## POSTER BOARD #

- 82 Preliminary Assessment of a Parallel-Plate Hemofiltration Cartridge for Implantable Renal Replacement Therapy  
Shuvo Roy, PhD - University of California, San Francisco
- 83 Evaluation of the Usability of Dialysis Machines by Measuring Eye Movement  
Takayuki Abe - Tokyo Women's Medical University

# FRIDAY, JUNE 15 (CONTINUED)

## POSTER BOARD #

- 84 Development of an Automated Perfusion System for Organ Resuscitation and Procurement  
*David S Demos, MD - University of Michigan - ASAIOfyi*
- 85 In Vivo Study of a Rotary Blood Pump System To Enhance Arteriovenous Fistula Eligibility  
*Howard M Loree, PhD - Flow Forward Medical LLC*
- 86 A Regional Blood Flow (RBF) Model for Glucose-Insulin Kinetics during Hemodialysis (HD)  
*Daniel Schneditz, PhD, Medical University Graz*
- 87 Prolonged Ex-Vivo Warm Perfusion of Kidneys Using a Blood-Derived Perfusate  
*Brian W Gray, MD - University of Michigan - ASAIOfyi*
- 88 How To Explain Inflammatory Reactions Observed in Peritoneal Dialysis?  
*Jörg Vienken, Prof. dr. - Fresenius Medical Care*
- 89 Acetate-Free Biofiltration (AFB) Can Improve Inflammatory Status in ESRD Patients Independently from Nutritional Status  
*Masatoshi Hayashida - Nagasaki Kidney Center*
- 90 A Wearable Blood Pump System To Enable Arteriovenous Fistulae  
*Howard M Loree, PhD - Flow Forward Medical LLC*
- 91 Characterization of the Diffusive Properties of Silicon Nanoporous Membranes for a Renal Epithelial Cell Bioreactor  
*Peter Soler - University of California, Berkeley - ASAIOfyi*
- 92 In Vitro Modeling of Vein Wall Shear Stress Levels after AVF and AFE System Placement  
*Elyse G Bailey, BS - Flow Forward Medical LLC*
- 93 Evaluation of Telomerase-Immortalized Human Proximal Tubule Cells for Use in a Bioartificial Kidney  
*Paul Brakeman, MD PhD - University of California, San Francisco*
- 94 Many Uremic Solutes Are Removed Less Effectively Than Urea by Hemodialysis  
*Tammy L Sirich, MD - Stanford University*

## ASAIO MEMBER BUSINESS MEETING

5:45PM Hunt Room - Mezzanine Level

# SATURDAY, JUNE 16

## CARDIAC TRACK

8:00AM-9:30AM Venetian Room - Lobby Level

## CARDIAC 5: VAD CLINICAL OUTCOMES

Chariman: *Aly El Banayosy, MD, Medical Director of MCS Prog, Penn State Hershey College of Medicine*

8:00AM Thrombotic Events  
*Mark Slaughter, MD, Chief CT & CV Surgery, Univ of Louisville*

8:15AM-8:30AM Mortality within the First Year of Support with a Heartmate II Left Ventricular Assist Device  
*Chadrick Cross, MD - Cardiothoracic & Vascular Surg Assoc, S.C*

8:30AM-8:45AM A Novel Risk Scoring System with Preoperative Objective Parameters Gives an Excellent Prediction of 1-Year Mortality in the Patients with Left Ventricular Assist Devices (LVADs)  
*Teruhiko Imamura, MD - University of Tokyo*

8:45AM-9:00AM

Does Treating Acute Cardiogenic Shock with Biventricular Assist Devices Improve Survival: A Single Institution Review  
*John F Lazar, MD, University of Rochester - ASAIOfyi*

9:00AM-9:15AM

Prediction of Left Ventricular Assist Device (LVAD) Patient Outcomes through Percent Carbon Dioxide Diffusing Capacity (%DLCO)  
*Annicka K Carter - Intermountain Medical Center - ASAIOfyi*

9:15AM-9:30AM

An Aggressive Policy of Pump Exchange Salvages Most Patients with Pump Malfunction  
*Edwin McGee, Jr, MD - Northwestern Memorial Hospital/ Northwestern University School of*

## CARDIAC POSTER SESSION 2

Posters Available All Day in the Grand Ballroom

## POSTER BOARD #

- 95 Pulmonary TNF $\alpha$  Concentration and Wall Thickness after On - Versus Off Pump Cardiac Surgery  
*Sven Lehmann, PhD - Heartcenter Leipzig*
- 96 The Helical Flow Total Artificial Heart: Design Concept and Initial Development  
*Yusuke Abe - The University of Tokyo*
- 97 Predictors of Short and Long term Mortality in Destination Therapy Patients over Age 60 Undergoing HMII LVAD Placement  
*Tadashi Motomura, MD, PhD - The Methodist Hospital*
- 98 Induction of Neointimal Tissue to Left Ventricular Apex with Titanium-Mesh  
*Takuma Miyamoto - TokyoWomen's Medical University - ASAIOfyi*
- 99 In Vivo Evaluation of an Implantable Magnetic Suspending Ventricular Assist Device  
*Changyan Lin, Ph.D - Capital Medical University, Beijing Anzhen Hospital Presentation Cancelled*
- 100 Combinatory Evaluation of Preoperative Risk Indices Well Predicts the Requirement of Biventricular Assist Device  
*Taro Shiga, MD, PhD - The University of Tokyo Hospital*
- 101 Intra-Cardiac Cycle Optimization of Power Transfer Efficiency in a Novel Intra-Aortic Circulatory Support Device  
*Jason J Heuring, Dphil - Procyron*
- 102 Outcomes for Patients Supported by a HeartMate XVE LVAD That Required Exchange for a HeartMate II LVAD  
*Rajko Radovancevic, MD - Texas Heart Institute at St. Luke's Episcopal Hospital*
- 103 Feedback Control of a Left-Ventricular Assist Device  
*Erol Sezer, PhD - Bahcesehir University*
- 104 The Addition of Suction Augments Flow in a Novel Cardiac Support Device  
*Nicholas R Teman, MD - University of Michigan Health System - ASAIOfyi*
- 105 Tricuspid Valve Surgery during Implant of a Left Ventricular Assist Device: Our Experience  
*Salil V Deo, MS MCH - Mayo Clinic*
- 106 In Vitro Blood Damage Testing of a Pulsatile Total Artificial Heart with a Newly Designed Mock Loop  
*Ralf Borchardt, Dipl.-Ing - Inst Applied Med Eng, RWTH Aachen Univ*

# SATURDAY, JUNE 16 (CONTINUED)

## POSTER BOARD #

- 107 Levitronix CentriMag Third-Generation MAGLEV Continuous Flow Pump as Bridge to Solution  
*Antonio Loforte, MD - S Camillo Hospital - ASAIOfyi*
- 108 Efficacy of Miniaturized ImaCor Trans-Esophageal Echocardiogram (TEE) Probe in Mechanical Circulatory Support  
*Christopher Y Kang, MD - Thomas Jefferson University Hospital*
- 109 Recovery of End-Organs and Improved Mortality in Adult Patients on ECMO  
*Joshua K Wong, BS - Thomas Jefferson University*
- 110 Mechanical Circulatory Support: Emergency Procedures and Education of Community Services  
*Juliane Vierecke - Deutsches Herzzentrum Berlin*
- 111 Incidence of Postoperative Bleeding in Patients with a HeartMate II Left Ventricular Assist System Sealed Grafts  
*Juliane Vierecke - Deutsches Herzzentrum Berlin*
- 112 Improving the Arterial Pulsatility Applying Reference Model Control of CF-LVAD Flow Rate: An Experimental Study  
*Selim Bozkurt, MSc - Eindhoven University of Technology*
- 113 Our Experience in the Development of an Implantable Axial Pump  
*George P Itkin, PhD - Lab of biothechnical systems, FNCNAO name ak V.I.Shumakov*
- 114 Platelet Function in Cardiopulmonary Bypass by Multiplate®  
*Hiromu Kehara - Shinshu University School of Medicine*
- 115 Monitoring Cardiac Recovery Post LVAD Implantation by Non-Contact Photoplethysmography of Peripheral Arterial Pulsatility  
*Jeffrey E Thatcher, PhD - UT Southwestern Medical Center at Dallas*
- 116 Ninety-Day Survival of a Calf Implanted with a Continuous-Flow Total Artificial Heart  
*Jeff L Conger - Texas Heart Institute*
- 117 Clinical Implementation of a New Miniaturized Continuous-Flow Assist Device Does Not Effect Patients Outcome  
*Jens Garbade, MD, PhD - University of Leipzig*
- 118 The First Turkish Axial-Flow: Initial Design and Numeric Analysis  
*K Toptop, MS - Bahcesehir University*
- 119 Effect of Inflow Cannula on Rotary Blood Pump Speed Pulsing Strategy  
*Kai Chun Wong, M. Sc. - Applied Medical Engineering*
- 120 Mechanical Circulatory Support in Interventricular Septum Rupture: Rescue Therapy of Bridge?  
*Cristiano Amarelli, MD - Monaldi Hospital, Italy*

## BIOENGINEERING TRACK

**8:00AM-9:30AM** Pavilion Room - Lobby Level

### BIOENGINEERING 5: HUMAN FACTORS ENGINEERING

Co-Chairs: *Kurt Dasse, PhD, Executive VP, GeNO LLC & COO Pharos LLC*  
*Heinrich Schima, PhD, Professor of Physics & Biomedical Engineering, Medical University Vienna*

**8:00AM** Integration Of Formal Methods And Human Factors For Artificial Organs  
*Ellen Bass, PhD, Associate Professor Systems & Info Eng, University of Virginia*

**8:30AM** Usability Assessment For Cardiac Assist Systems: From Mock Tests To Multicenter Studies  
*Heinrich Schima, PhD, Professor of Physics & Biomedical Engineering, Medical University Vienna*

**9:00AM-9:15AM** Size and Weight Reduction of Energy Transmission Transformers for a Ventricular Assist Device  
*Kenji Shiba, Dr. Eng. - Tokyo University of Science*

**9:15AM-9:30AM** Power and Telemetry for a Novel Partial Circulatory Support Device through Transcutaneous Energy Transfer  
*Jason J Heuring, Dphil - Procyron*

## BIOENGINEERING POSTER SESSION 2

Posters Available All Day in the Grand Ballroom

## POSTER BOARD #

- 121 Physiological Response to a Simplified Venovenous Perfusion-Induced Systemic Hyperthermia System  
*Cherry Ballard-Croft, PhD - University of Kentucky*
- 122 Effects of Liposome-Encapsulated Hemoglobin on Low-Grade Cardiopulmonary Exercise in the Rat  
*Akira T Kawaguchi, MD, PhD - Tokai University School of Medicine*
- 123 Liposome-Encapsulated Hemoglobin Is Protective Immediately Prior to Reperfusion in 2-Hour Cerebral Ischemia Model in the Rat  
*Akira T Kawaguchi, MD, PhD - Tokai University School of Medicine*
- 124 Development of the Circulatory System Simulator for Medical Education  
*Takashi Ichinose - Graduate School of Tokyo Denki University*
- 125 Potential of Tissue Engineering an Allograft into a Functional Autograft  
*Lauren Brasile, PhD - BREONICS, Inc.*
- 126 Plasma Expander Viscosity Effects on Red Cell-Free Layer Thickness after Moderate Hemodilution  
*Pedro Cabrales, PhD - University of California, San Diego - ASAIOfyi*
- 127 A Scalable, Micropore, Platelet Rich Plasma Extraction Device  
*Mary Nora Dickson, MS - Columbia University*
- 128 Theoretical Investigation of Recirculation with Double-Lumen Balloon Catheters  
*Yoichi Marushita, M.Eng. - Toin University of Yokohama*
- 129 Functional Assessment of Vascular Access by Shunt Murmurs at Arterial Vascular Anastomosis  
*Yuka Motohashi, M.Eng. - Toin University of Yokohama*
- 130 Method of Risk Analysis for DAVs  
*Andre Cavalheiro, MD - Fundacao Santo Andre*
- 131 PLGA-Gelatin Supramacroporous Matrix for Lung Tissue Engineering  
*Sung Soo Han, PhD - Yeungnam University*
- 132 Effects of a Perfluorocarbon Emulsion on the Physicochemical Properties of Blood in the Presence of Hydroxyethyl Starch (HES) in a Normovolemic Hemodilution (In Vitro)  
*Diana M M Vásquez - Universidad de los Andes*

## POSTER BOARD #

- 133 **Musculoskeletal Regeneration Via Osteoinductive Polymer/Ceramic Composite Scaffolds**  
*Bret D Ulery, PhD - University of Connecticut Health Center - ASAIOfyi*
- 134 **A Particle Image Velocimetry Study of Two Penn State Pulsatile 50cc LVAD Designs: Thrombus Susceptibility Comparisons**  
*Michael A Navitsky - The Pennsylvania State University - ASAIOfyi*
- 135 **Haemolysis Evaluation of Centrifugal BiVAD Using Computational Fluid Dynamics Analysis**  
*Andy Chit Tan, PhD - Queensland University of Technology*
- 136 **Computational Fluid Dynamic Investigation in the Inlet Port of a New Model of Centrifugal Blood Pump for Cardiopulmonary Bypass and Circulatory Support with Different Impeller Angles**  
*Aron Andrade, PhD - Institute Dante Pazzanese of Cardiology*
- 137 **Study on the Changes in Mechanical Properties of Implanted Collagen Vascular Grafts**  
*Javier Navarro - Universidad de Los Andes*

## PULMONARY TRACK

**8:00AM-9:30AM** Crystal Room - Lobby Level

### PULMONARY 3: NEW AND NOVEL ARTIFICIAL LUNG TECHNOLOGIES

- Co-Chairs: *William Federspiel, PhD, William Kepler Whiteford Prof, University of Pittsburgh*  
*Zhongjun Wu, PhD, Associate Professor, University of Maryland Sch of Med*
- Design And Optimization Of An Integrated Artificial Pump-Lung For Respiratory Support**  
*Zhongjun Wu, PhD, Associate Professor Surgery, University Maryland School of Medicine*
- From Premature Infants To Adults: Modular Systems For Personalized Lung Support**  
*Ulrich Steinseifer, PhD, Director of CV Engineering, Helmholtz Institute, RWTH Aachen University*
- Accelerating Co2 Removal Using Biocatalysis**  
*Jeremy Kimmel, PhD, Postdoctoral Scholar, University of Pittsburgh*
- Scaling Of Microfluidic Artificial Lung Devices For Clinical Applications**  
*Alla Epshteyn, Chemical Engineer, Draper Laboratory Inc*

## CARDIAC TRACK

**8:00AM-9:30AM** Gold Room - Lobby Level

### CARDIAC 6: VAD HEMODYNAMICS

Chairman: *Charles Hoopes, MD, Director Thoracic Transplant Program, University of Kentucky*

**8:00AM-8:15AM**

- Comparative Pathology of an Implantable Left Atrial Pressure Monitor**  
*Karen Trainor, DVM, MS - Texas A&M University - ASAIOfyi*  
*ASAIO Willem J Kolff - Don B Olsen Award Recipient*

**8:15AM-8:30AM**

- Alternation of LV Preload by Continuous-Flow LVAD with Native Heart Load Control System (NHLCS) in Chronic Heart Failure Model**  
*Mamoru Arakawa, MD - National Cerebral & CV Crt, Japan - ASAIOfyi, ASAIO Y Nose International Fellowship Recipient*

**8:30AM-8:45AM**

- Effect of Concomitant Speed Increase with Exercise on Invasively Measured Haemodynamics in Patients with Continuous Flow Left Ventricular Assist Devices (LVADs)**  
*Kavitha Muthiah, MBChB - St. Vincent's Hospital, Australia - ASAIOfyi Fellowship Recipient*

**8:45AM-9:00AM**

- Preclinical and Clinical Testing of a Novel, Ultrapure Nitric Oxide Delivery System as a Treatment for Pulmonary Hypertension**  
*Robert F. Roscigno, PhD - GeNO, LLC*

**9:00AM-9:15AM**

- Relationship Between Heart Rate and Pump Flow in Patients Implanted with Continuous Flow Left Ventricular Assist Devices (LVAD)**  
*Kavitha Muthiah, MBChB - St. Vincent's Hospital, Australia - ASAIOfyi Fellowship Recipient*

**9:15AM-9:30AM**

- The Effects of Systemic and Pulmonary Continuous Blood Flow Physiology on Microvascular Gene Expression**  
*Egemen Tuzun, MD - Texas A&M University Institute for Preclinical Studies*

## VISIT EXHIBITS & POSTERS - ENJOY REFRESHMENTS

**9:30AM-10:15AM** Grand Ballroom

## GENERAL SESSION 3

**10:15AM-10:45AM** Gold Room - Lobby Level

### KEYNOTE ADDRESS:

- Co-Chairs: *Kurt Dasse, PhD, Executive VP GeNO LLC & COO Pharos LLC*  
*William Fissell, MD, Associate Staff Nephrology & Hypertension, Cleveland Clinic*
- Innovations: Past, Present And Future**  
*Dean Kamen, PhD, President, DEKA Research & Development Corp, Manchester*



# SATURDAY, JUNE 16 (CONTINUED)

## CARDIAC TRACK

10:45AM-12:00PM Venetian Room - Lobby Level

### CARDIAC 7: INDUSTRY SPEAKS: IMPROVEMENTS IN DEVICE TECHNOLOGY

Co-Chairs: *Lyle Joyce, MD, PhD, Cardiovascular Surgeon, Mayo Clinic*  
*Keith Aaronson, MD, Medical Director Internal Medicine, University of Michigan*

**Transcutaneous Energy Transfer: Benefits, Challenges & Opportunities**  
*Laxmi Peri, VP Technology & Product Development, Thoratec*

**Building off Platform Technologies**  
*Scott Corbett, PhD, Director Systems Engineering, Abiomed*

**Issues Relevant To Pediatric Support**  
*Robert Kroschwitz, President & CEO, Berlin Heart Inc*

**Future Of Miniturization**  
*Jeffrey LaRose, MSME, Executive VP, HeartWare Inc*

**Status of Implantable Maglev And Duraheart 2**  
*Alexander Medvedev, PhD, VP Research & Development, Terumo Heart Inc*

## RENAL TRACK

10:45AM-12:00PM California Room - Mezzanine Level

### RENAL 4: TECHNOLOGICAL INNOVATIONS IN DIALYSIS DELIVERY

Chairman: *Balazs Szamosfalvi, MD, Staff Physician, Henry Ford Hospital*

**The Kidney Project: Progress Towards Implantable Total Renal Replacement Therapy**  
*Shuvo Roy, PhD, Associate Professor Bioengineering University of California San Francisco*

**Automated Regional Citrate Anticoagulation (RCA) 1: Scientific Principles**  
*Balazs Szamosfalvi, MD, Staff Physician, Henry Ford Hospital*

**Automated RCA 2: Inexpensive Labview-Based System For Rapid, Multi-Center Research Adoption**  
*Stanley Frinak, MSEE, Research Engineer, Henry Ford Hospital*

**Automated RCA 3: Web-Server Based Prescribing Module, System Telemetry And Data Archival**  
*Gerard Zasuwa, Lead Systems Analyst, Henry Ford Hospital*

## BIOENGINEERING TRACK

10:45AM-12:00PM Pavilion Room - Lobby Level

### BIOENGINEERING 6: ORAL PRESENTATIONS

Co-Chairs: *Marina Kameneva, PhD, Dir Hemorheology, Hemodynamics and Artificial Lung blood Research lab, Univ of Pittsburgh*  
*Pedro Cabrales, PhD, Asst Prof Bioeng, University of California San Diego*

10:45AM-11:00AM

**Liposome-Encapsulated Hemoglobin Enhances Chemotherapy To Suppress Tumor Growth and Metastasis in Mice**  
*Akira T Kawaguchi, MD, PhD - Tokai University School of Medicine*

11:00AM-11:15AM

**Hypervolemic Infusion of Poly(ethylene glycol) Surface Conjugated Vesicles Encapsulating Hemoglobin Attenuates the Intrinsic Vasoactivity of Cell-Free Hemoglobin**  
*Pedro Cabrales, PhD - University of California, San Diego - ASAIOfyi*

11:15AM-11:30AM

**Measurement of Plasma Proteins for Monitoring In Vivo the Host Response to Small Intestinal Submucosa Vascular Grafts**  
*Diana Sanchez-Palencia, PhD Candidate - Universidad de los Andes - ASAIOfyi*

11:30AM-11:45AM

**ATP-Adenosine-Reduced Glutathione Cross-Linked Hemoglobin as Oxygen Carrier with Wide Array of Therapeutic Applications**  
*Jan Simoni, DVM, PHD - Texas Tech University Health Sciences Center*

11:45AM-12:00PM

**Relationships Between Platelet Activation, Platelet Counts and Agonist Concentrations for Circulatory Support Device Development**  
*Denise A. Medvid, BS, MT, (ASCP) - Penn State College of Medicine*

## PULMONARY TRACK

10:45AM-12:00PM Crystal Room - Lobby Level

### PULMONARY 4: ORAL PRESENTATIONS

Chairman: *William Federspiel, PhD, Prof of Bioengineering, University of Pittsburgh*

10:45AM-11:00AM

**Developing a Biohybrid Lung – Endothelialization with Allogeneic MHC-Silenced Endothelial Cells To Prevent Transplant Rejection**  
*Bettina Wiegmann, Dr. med. - Hannover Medical School*

11:00AM-11:15AM

**The Use of a Low Resistance Compliant Thoracic Artificial Lung in the Pulmonary Artery to Pulmonary Artery Configuration**  
*Christopher N Scipione, MD - University of Michigan*

11:15AM-11:30AM

**Development of a Polydimethylsiloxane and Silicon Asymmetric Membrane Oxygenator**  
*Torin Yeager - University of California San Francisco - ASAIOfyi*

11:30AM-11:45AM

**Fluid Dynamics in Oxygenators under and Post Utilization Evaluated by Ultrasound, Angiography and CAT-Scan**  
*Daniele Camboni, MD - University Medical Center Regensburg - ASAIOfyi*

11:45AM-12:00PM

**Pulsatile Blood Flow Augments Gas Exchanger Performance**  
*Ju Zhao, MD - University of Kentucky Medical College*

## LUNCH BREAK

12:00PM-1:15PM

# SATURDAY, JUNE 16 (CONTINUED)

## CARDIAC TRACK

1:30PM-3:30PM Venetian Room - Lobby Level

### CARDIAC 8: VAD COMPLICATIONS

Chairman: Benjamin Sun, MD, Chair CT Surgery, Minneapolis Heart Institute

1:30PM Aortic Insufficiency

Jennifer Cowger, MD, Assistant Professor Internal Medicine, University of Michigan

1:45PM-2:00PM

Aortic Valve Pathology and Left Ventricular Assist Device Implantation  
Nikolay Dranishnikov, MD - German Heart Institute Berlin

2:00PM-2:15PM

Incidence and Prognostic Significance of Mitral Regurgitation in Continuous Flow Left Ventricular Assist Devices  
Geetha Bhat, MD, PhD, Advocate Christ Medical Center

2:15PM Pump Infections

Georg Wiesenthaler, MD, Professor Clinical Surgery, Univ of California SF

2:30PM-2:45PM

Comprehensive Engineering Support in Long-Term Continuous Flow LVAD Management: Contribution of Driveline Maintenance and Repair  
Tadashi Motomura, MD, PhD - The Methodist Hospital DeBakey Heart & Vascular Center

2:45PM-3:00PM

Development and Animal Test of a Novel Infection-Resistant Skin-Button for Long-Term VAD Support  
Toshihide Mizuno, DVM, PhD - National cerebral and cardiovascular research center institute

3:00PM-3:15PM

Drive Line Infections in Left Ventricular Assist Device: Implications for Destination Therapy  
Vikas Sharma - Mayo Clinic

3:15PM-3:30PM

Left Ventricular Assist Driveline Failure after 1 Year of Support: Incidence, Operative Technique and Clinical Outcomes. Single-Center Experience  
Alexander Stepanenko, MD - Deutsches Herzzentrum Berlin

## BIOENGINEERING TRACK

1:30PM-3:30PM Pavilion Room - Lobby Level

### BIOENGINEERING 7: ENGINEERING APPROACHES IN THE DEVELOPMENT OF ARTIFICIAL ORGANS

Co-Chairs: Tim Kaufmann, PhD, Research Associate CV Engineering, RWTH Aachen University  
Ralph Borchardt, Dipl.-Ing., Cardiovascular Engineer, Inst Applied Med Eng, RWTH Aachen Univ

1:30PM-1:45PM

In Vivo Evaluation of a Novel Autologous Valve with a Stent (Biovalve Stent) for Transcatheter Aortic Valve Implantation (TAVI)  
Yoshiaki Takewa, MD, PhD - National Cerebral and Cardiovascular Center Research Institute

1:45PM-2:00PM

On the Mechanisms of Flow-Induced Blood Trauma: Blood Viscosity vs. Cell-Cell Interactions  
Amanda Daly, BS - University of Pittsburgh - ASAIOfyi

2:00PM-2:15PM

Basal Study on Three-Dimensional Hybrid Artificial Organ with Fibrous Scaffolds and Cells  
Masahiro Murai, B.S - Tokyo Denki University

2:15PM-2:30PM

Toward Development of Self-Regenerating Heart Valve Leaflet  
S. Hamed Alavi, M.Sc - University of California Irvine

2:30PM-2:45PM

Scaffold Structure and Mechanics in Differently Obtained Small Intestinal Submucosa Scaffolds  
Diana Sanchez-Palencia, MSc - Universidad de los Andes - ASAIOfyi

2:45PM-3:00PM

Controlled Pitch-Adjustment of Impeller Blades for an Intravascular Blood Pump  
Amy L Throckmorton, PhD - Virginia Commonwealth University - ASAIOfyi

3:00PM-3:15PM

A Mathematical Model of Blood Flow in Intracranial Aneurysms with Endovascular Devices  
Carolina Vallecilla, PhD - Centre National de la Recherche Scientifique

3:15PM-3:30PM

The MVAD® Pump: HALT and Shock Testing  
Fernando Casas, PhD - HeartWare Inc.

## PULMONARY TRACK

1:30PM-3:30PM Crystal Room - Lobby Level

### PULMONARY 5: ORAL PRESENTATIONS

Chairman: Matthew Bacchetta, MD, Assistant Professor of Surgery, Columbia University Medical Center

1:30PM-1:45PM

Five Day Sheep Preclinical Studies Using a New Venovenous Perfusion-Induced Systemic Hyperthermia Circuit  
Cherry Ballard-Croft, PhD - University of Kentucky

1:45PM-2:00PM

Peripheral Extracorporeal Membrane Oxygenation System as Salvage Treatment of Patients with Refractory Cardiogenic Shock  
Antonio Loforte, MD - S Camillo Hospital - ASAIOfyi

2:00PM-2:15PM

Organ Care System® - Initial Experience within Lung Transplantation  
Bettina Wiegmann, MD - Hannover Medical School

2:15PM-2:30PM

Hybrid ECMO for Circulatory Support Guarantees Adequate Heart/Brain Oxygen Supply  
Ju Zhao, MD - University of Kentucky College of Medicine

2:30PM-2:45PM

The Physiological Effects of the Artificial Pump-Lung Device in an Ovine Model  
Xufeng Wei - University Of Maryland - ASAIOfyi

## SATURDAY, JUNE 16 (CONTINUED)

### 2:45PM-3:00PM

Adverse Effects of Cardiopulmonary Bypass in Lung Transplantation and Their Prevention  
*Koichi Sato, MD, PhD - Niigata Univ. Hsp/Deutsches Herzzentrum Berlin*

### 3:00PM-3:15PM

Extracorporeal Membrane Oxygenation Support in Acardia  
*Sotirios Marinakis, MD - CHUV - ASAIOfyi*

### 3:15PM-3:30PM

Markers of Lung Injury in ECMO with Low Tidal Volume Ventilation for Severe ARDS  
*Gopal Singh, MD - Columbia University Medical Center - ASAIOfyi*

## CARDIAC TRACK

1:30PM-3:30PM Fountain Room - Lobby Level

### CARDIAC 9: CARDIOPULMONARY BYPASS

Chairman: *Jonathan Haft, MD, Assistant Professor Surgery, University of Michigan*

#### 1:30PM-1:45PM

Gene Expression Profiling in Patients Undergoing Coronary Artery Bypass Surgery with Mini-Extracorporeal Circuit or Conventional One: Implication for Inflammatory Cytokine Balance  
*Kiyooki Takaba, MD, PhD - Kinki University Faculty of Medicine*

#### 1:45PM-2:00PM

Circulatory Inflammatory Response in Relation to On- Versus Off Pump Cardiac Surgery  
*Sven Lehmann, PhD - Heartcenter Leipzig*

#### 2:00PM-2:15PM

A Novel Miniature CPB Model Using Rat for Pathophysiological Examination  
*Yutaka Fujii, ME - National Cerebral and Cardiovascular Center Research Institute*

### CARDIAC 9: NEW DEVICES

#### 2:15PM-2:30PM

Hemodynamic Effects of a Catheter-Deployed Intra-Aortic Micro-Axial Entrainment Pump in a Porcine HF Model  
*Michael Cuchiara, PhD - Procyrion*

#### 2:30PM-2:45PM

Seven-Year Experience with a Continuous-Flow Total Artificial Heart in Calves  
*Steven M Parnis, BS - Texas Heart Institute*

#### 2:45PM-3:00PM

Development and Evaluation of a Compact Wearable Pneumatic Drive Unit for a Ventricular Assist Device  
*Kentaro Ohnuma, PhD - National Cerebral and Cardiovascular Center, Japan*

#### 3:00PM-3:15PM

The MVAD® Pump: Feature Comparison with the HVAD® Pump  
*Fernando Casas, PhD - HeartWare Inc.*

#### 3:15PM-3:30PM

Preliminary Evaluation of Implantability and Biocompatibility of a Miniaturized Magnetically Suspended Centrifugal Blood Pump  
*Chen Chen, PhD - CH Biomedical Inc*

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# The **RELIVE** Trial

## (**R**andomized **E**valuation of **L**ongterm **I**ntraventricular **V**AD **E**ffectiveness)

Compares the JARVIK 2000<sup>®</sup>  
and the HeartMate II for DT

**Primary Endpoint:**  
(evaluated for non-inferiority)

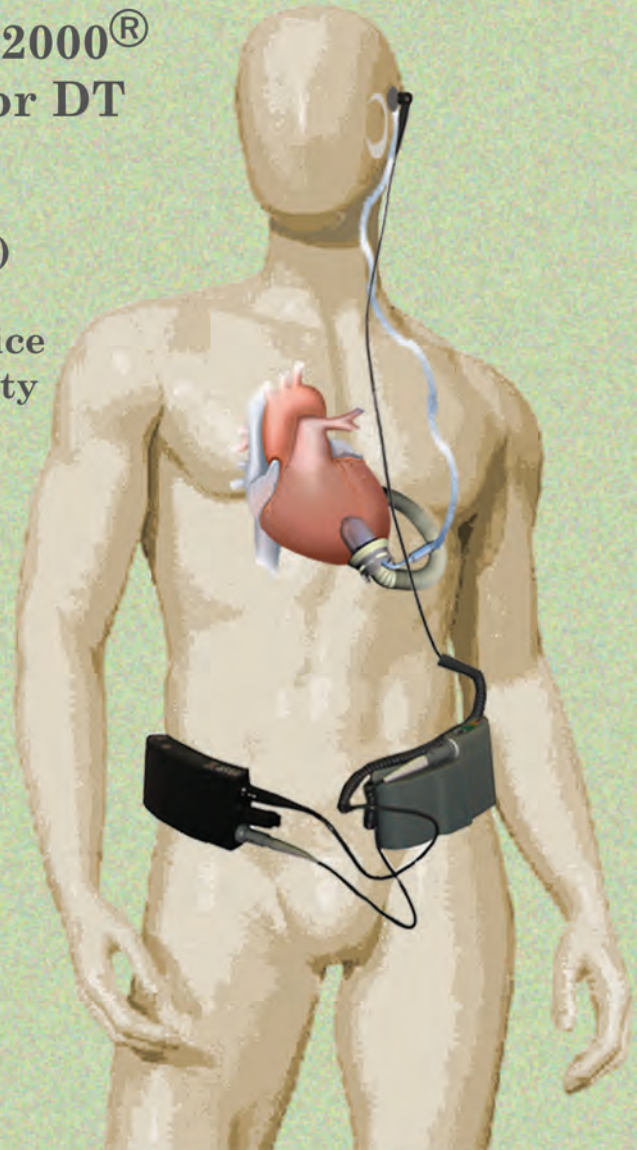
Two-year survival free of device replacement or major disability from stroke.

**Additional Endpoint:**  
(evaluated for superiority)

Three-year survival free of major infection.

All Jarvik 2000 devices will use cone bearings and post-auricular power connectors.

The study will enroll up to 350 patients at 50 Centers.



- Jarvik Heart recently completed enrollment of its BTT trial and followup of the primary cohort to outcome (150 pts).
- Results show a significant improvement in success of the primary endpoint for the new cone bearing device compared to the earlier pin bearing model.

**It Simply Works**