



Providing Healthcare Solutions Through Discovery, Education & Engineering

ASAIO 56TH ANNUAL CONFERENCE  
MAY 27 - 29, 2010  
BALTIMORE, MARYLAND

# PROGRAM

# MINNETRONIX<sup>®</sup>

*Thinking Medical Systems<sup>®</sup>*

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**“**The value that Minnetronix provides a startup company in current economic times is exceptional. A partnership with Minnetronix means speed-to-market and effective use of capital, backed by proven design and manufacturing resources.

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Philip Vierling, CEO  
Kalypto Medical



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\*\* Denotes an ASAIO Member

## WWW.ASAIO.COM

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FOR YOUNG INNOVATORS ASAIO <i>fji</i>	INDUSTRY & SCIENTISTS
FORMS	PROJECT BIONICS
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	MEMBERS AREA

## ASAIO INC

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Info@asaio.com • www.asaio.com

# SAVE THE DATE!

ASAIO 57<sup>TH</sup> ANNUAL CONFERENCE  
WASHINGTON DC  
JUNE 10-12 2011

## ASAIO MISSION STATEMENT

To Advance the Research, Development and  
Medical Application of Bionic Technologies

## ASAIO EDUCATIONAL GRANT SPONSORS

### PLATINUM LEVEL



### BRONZE LEVEL



### ADDITIONAL SPONSORS



# ASAIO BOARD OF TRUSTEES

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**Steven Koenig**  
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**William Fissell, MD**  
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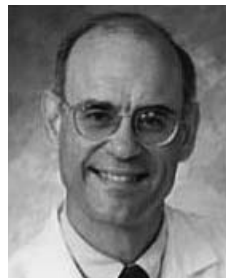
### Renal

Robert Lindsay, MD  
Andre Kaplan, MD

## ASAIO JOURNAL

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## FELLOWSHIPS & AWARDS

### ASAIO YOUNG INNOVATOR FELLOWSHIPS FIRST TIME AUTHORS

*Sponsored by an Educational Grant from  
Lippincott Williams and Wilkins*

#### Mickey Ising, BS – University of Louisville

“Delivering Physiologic Pulse Pressures with Continuous  
Flow Ventricular Assist Devices”

#### Yajuan Wang, MS – Carnegie Mellon University

“Optimal Identification of Need for Right Ventricular  
Support Using Cost-Sensitive Decision Tree”

### ASAIO FELLOWSHIP RECIPIENTS

*Sponsored by an Educational Grant from Levitronix*

#### Rebecca Schewe, MS – University of Michigan

“Compliant Thoracic Artificial Lung Design Using Fluid-  
Structure Interaction Modeling”

#### Jason Nanna, BS – Penn State University

“An Improved Experimental Wall Shear Estimation within a  
50cc Penn State Blood Pump”

#### Jaewook Nam, PhD – Rice University

“Modeling and Numerical Analysis of Platelet Activation,  
Adhesion and Aggregation in Artificial Organs”

#### Pere Ventura, BS – Intermountain Medical Center

“Outcomes with the Levitronix CentriMag as  
Cardiopulmonary Support (CPS) for Cardiogenic Shock”

#### Sonya Bhavsar, BS – Virginia Commonwealth University

“Use of External Pressure Application to Augment  
Fontan Hemodynamics”

#### Alexandre Peyser, BS – Columbia University

“Dialyzer End-Caps Revisited”

## FELLOWSHIPS & AWARDS *Continued*

### ASAIO Y NOSÉ INTERNATIONAL FELLOWSHIP

**Takashi Nishimura, MD, PhD – Univ of Tokyo**

“Development of Native Heart Load Control System with Continuous Flow Ventricular Assist Device for Bridge to Recovery of Failing Heart”

**SPONSORED BY THE Y NOSÉ FELLOWSHIP FUND**

### ASAIO WILLEM J. KOLFF / DON B. OLSEN AWARD

**Nobumasa Katagiri, ME – Nat'l CV Ctr Research Inst**

“An Ultra-Durable Heparin-Free Pediatric and Adult ECMO Systems and Its Clinical Application in Japan”

**SPONSORED BY THE MEDFORTE FOUNDATION**

### BARNEY CLARK AWARD

**Eli Friedman, MD**

Downstate Medical Center

Eli Friedman, born in Brooklyn, obtained a BS degree from Brooklyn College and his MD From the State University of New York, Downstate Medical Center. His Nephrology fellowship was at the Peter Bent Brigham Hospital with John Merrill. He returned to Downstate in 1963 as an assistant professor and established a nephrology program and one of the first dialysis units outside Seattle. He became Professor of Medicine in 1971 and in 1992 was appointed Distinguished Teaching Professor.

Eli is a distinguished teacher, researcher, speaker and author on kidney failure and many other aspects of nephrology and is renowned around the world. He was president of the ASAIO in 1987-88 and Editor of the ASAIO Journal from 1968 to 2003. He is a past president of the ISAO and of the International Society for Geriatric Nephrology and Urology and has received many prestigious honors and awards. He has always been an advocate for patients and set up the first patient organization in the United States, now called the American Association of Kidney Patients.



## ACCREDITATION CME/CCP/CNE

### CME 19.5 AMA PRA CATEGORY 1 CREDITS™ - PHYSICIANS

This 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 19.5 AMA PRA Category 1 Credits™. Physicians should only claim credit commensurate with the extent of their participation in the activity.

### Accreditation for the ASAIO Program

THURSDAY, MAY 27	7.5 Contact Hours
FRIDAY, MAY 28	7.5 Contact Hours
SATURDAY, MAY 29	4.5 Contact Hours

### Accreditation for the Intensive Dialysis Day Program

FRIDAY, MAY 28	16 Contact Hours
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### CEU 23.4 CREDIT HOURS - NURSES

#### Accreditation for the ASAIO Program

THURSDAY, MAY 27	9.0 Contact Hours
FRIDAY, MAY 28	9.0 Contact Hours
SATURDAY, MAY 29	5.4 Contact Hours

### Accreditation for the Intensive Dialysis Day Program

FRIDAY, MAY 28	19.2 Contact Hours
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### CCP 23.1 CATEGORY 1 CEU'S - PERFUSIONIST

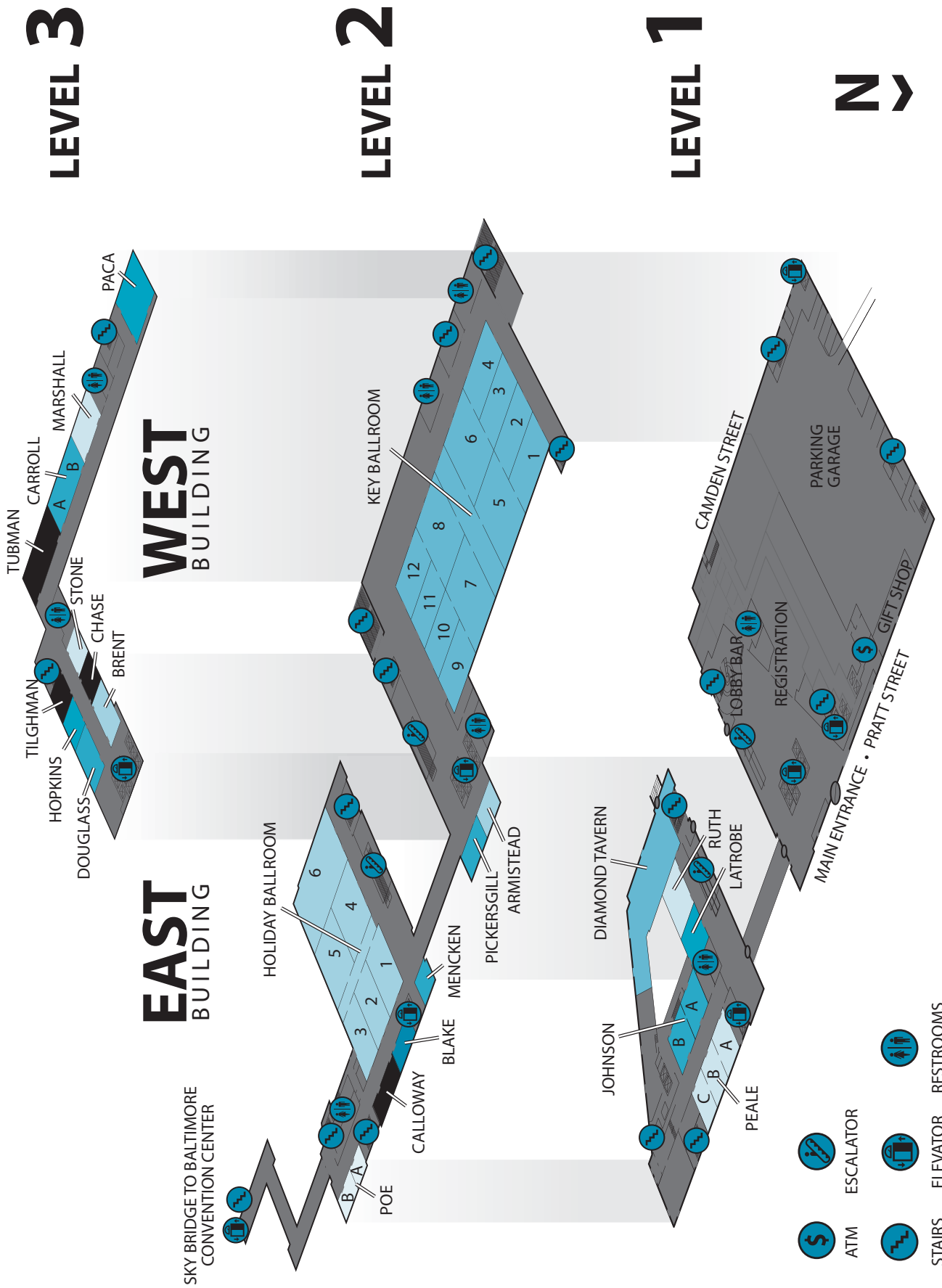
The American Board of Cardiovascular Perfusion will allot the following Category 1 CEU's to those Perfusionist who attend the ASAIO Annual Conference as follows:

WEDNESDAY, MAY 26	2.4 Contact Hours
THURSDAY, MAY 27	8.4 Contact Hours
FRIDAY, MAY 28	8.7 Contact Hours
SATURDAY, MAY 29	3.6 Contact Hours

Perfusionists must sign in once a day at the ASAIO Registration Desk to verify attendance.

A photo ID is required for participation to obtain registration materials.

# HILTON BALTIMORE FLOORPLAN

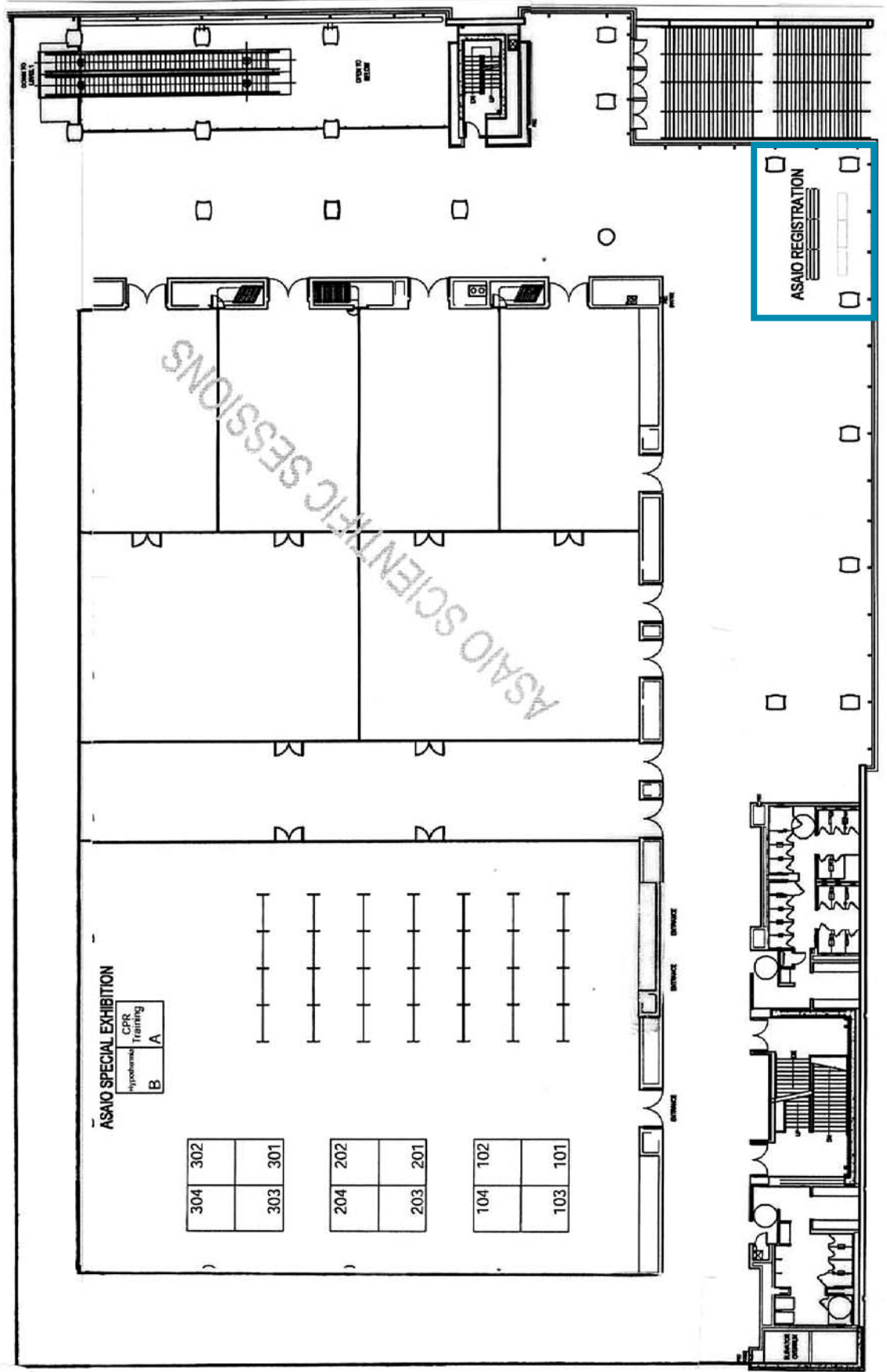


# EXHIBIT HALL - KEY BALLROOM 1-6

## POSTER SESSIONS

## REFRESHMENT BREAKS

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103	Heartware	204	ICAOT
102	Syncardia Systems	301	Jarvik Heart
104		303	Cincinnati Sub-Zero
201	Minntech TTG	302	Levitronix
208	Lippincott Williams & Wilkins ASAIO Publisher	304	Elsevier



## EXHIBIT PRODUCT DESCRIPTIONS



CINCINNATI SUB-ZERO

**BOOTH 303**

CINCINNATI, OHIO

Cincinnati Sub-Zero has been delivering patient temperature management systems to healthcare professionals since 1963; we design with the patient in mind. Our complete line of products include therapeutic heating and cooling therapy units along with a complete line of warming and cooling blankets for body temperature regulation and hyper-hypothermia treatment.



ELSEVIER  
Mosby | Saunders

ELSEVIER

**BOOTH 304**

Elsevier is one of the world's leading publisher of medical books, periodicals and electronic reference products in the world.



HEARTWARE, INC

**BOOTH 103**

FRAMINGHAM, MASSACHUSETTS

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.



INTERNATIONAL CENTER FOR  
ARTIFICIAL ORGANS AND  
TRANSPLANTATION

**BOOTH 204**

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.



JARVIK HEART INC

**BOOTH 301**

NEW YORK, NEW YORK

Jarvik Heart, Inc is a privately held, New York based company that develops and manufactures miniaturized heart assist devices for the treatment of severe heart failure. The Jarvik 2000 is a battery-powered axial-flow left ventricular assist device (LVAD). It is the smallest implantable blood pump available for the long-term treatment of Heart Failure.



LEVITRONIX

**BOOTH 302**

WALTHAM, MASSACHUSETTS

Levitronix designed, developed, and produces the CentriMag, PediMag and PediVAS circulatory support devices. In the United States, the CentriMag pump is approved for up to 30 days of use for patients requiring right ventricular support, and is undergoing clinical trials to treat patients in cardiogenic shock as a bridge to decision. The PediVAS is optimized to provide circulatory support for neonatal and pediatric patients, and is currently only available outside the United States. The PediMag pump is available in the United States for use in a cardiopulmonary circuit for up to 6 hours. CentriMag and PediVAS systems are both CE Mark approved for use for up to 30 days for use as a VAD or for ECMO.

## EXHIBIT PRODUCT DESCRIPTIONS *Continued*



LIPPINCOTT WILLIAMS  
& WILKINS – WOLTERS  
KLUWER HEALTH

**BOOTH 203**  
PHILADELPHIA, PENNSYLVANIA

Lippincott Williams & Wilkins, a Wolters Kluwer Health company is a leading international publisher of medical books, journals, and electronic media. We proudly offer specialized publications and software for physicians, nurses, students and clinicians. Please visit our booth to browse our comprehensive product line.



MINNTECH TTG  
**BOOTH 201**  
MINNEAPOLIS, MINNESOTA

Minntech Corp, a Cantel Medical Corp company, was founded in 1974 in Minneapolis. Minntech Corp is a leader in developing, manufacturing, and marketing medical devices, electronics, sterilants, and water purification products. Some of the medical applications currently being supplied to partner companies are hemofiltration, hemoconcentration, immunomodulator removal, encapsulated cell technology, biopharmaceutical research, and bioartificial organs. The Therapeutic Technologies Group within Minntech Corp is ready to provide regulatory and marketing support to partner companies, as well as to provide assistance in:

- Research and development
- Product design
- Packaging
- Product validation



SYNCARDIA SYSTEMS INC  
**BOOTH 102**  
TUCSON, ARIZONA

The SynCardia temporary Total Artificial Heart (TAH-t) is the only FDA, Health Canada and CE approved device that provides circulatory restoration in morbidly ill patients with irreversible bi-ventricular failure, providing a life-saving bridge until a donor human heart becomes available. In 2006, the EXCOR® TAH-t mobile driver was granted a CE mark, enabling European hospitals to discharge stable TAH-t patients to return home while they are awaiting a transplant. Visit our booth for updates on upcoming clinical studies for the Freedom™ driver, the 50cc TAH-t, and the pediatric VAD.



THORATEC®  
CORPORATION

THORATEC CORPORATION  
**BOOTH 202**  
PLEASANTON, CALIFORNIA

With more than 14,000 patient implants and three decades of experience, Thoratec® Corporation offers the broadest portfolio of mechanical circulatory support devices. Thoratec's product line includes the CentriMag® Acute Circulatory Support Device, HeartMate® LVAS, Thoratec PVAD™ and IVAD™. Now the HeartMate II® is FDA approved for both Bridge to Transplantation and Destination Therapy.



TRANSONIC SYSTEMS INC  
**BOOTH 101**  
ITHACA, NEW YORK

Transonic Systems' flowmeters and sensors are the recognized gold standard volume flow measurement apparatus for liquids in clinical and laboratory settings. Transonic Flowmeters are used worldwide in laboratory research, Hemodialysis monitoring, cardiovascular surgery, vascular access angioplasty, neurosurgery, critical care and as OEM components in VAD, CPB and numerous other controlled flow systems.

Featured in our booth will be Transonic laboratory research products – acute intra-operative, chronically implantable, extracorporeal, as well as the PhysioGear™ and EndoGear™ telemetry systems plus the *Transonic Inside* OEM products and development capabilities.

SPECIAL INTERACTIVE EXHIBIT  
FRIDAY, MAY 28TH  
1:30PM – 5:00PM

Demonstrating the Preparation and Management During Transport of a Critically Ill Patient Who is Being Sent to a Tertiary Care Facility for a Highly Technical Procedure. In addition, Attendees Can See How Well They Perform Resuscitation-Related Procedures

*Richard Aghababian, MD - Assoc Dean CME, Univ of Massachusetts Medical School*

*\*\*James DuCanto, MD - Asst Clinical Prof Liver Transplant Anesthesia, Aurora St Luke's Medical Ctr*

*Jorge Yarzebski, NREMT-P - Emergency Med Prog Coordinator, Univ of Massachusetts*

# PROGRAM OUTLINE

## THURSDAY, MAY 27, 2010

8:00am – 12:00pm – Key Ballroom 8, 11, 12 – Level 2  
**Opening General Session – Page 14**

11:45am – 12:00pm  
**ASAI0 Y Nosé International Fellowship  
Presentation – Page 14**

12:15pm – 1:15pm – Tubman A, B – Level 3  
**Working Luncheon – Page 14**

1:30pm – 3:00pm – Key Ballroom 9 – Level 2  
**Cardiac Slide Session 1 – Page 14**

1:30pm – 3:00pm – Key Ballroom 10 – Level 2  
**Cardiac Invited Speakers 1 – Page 15**

3:45pm – 5:15pm – Key Ballroom 9 – Level 2  
**Cardiac Slide Session 2 – Page 15**

3:45pm – 5:15pm – Key Ballroom 10 – Level 2  
**Cardiac Invited Speakers 2 – Page 15**

8:00am – 5:00pm – Exhibit Hall – Level 2  
**Cardiac Poster Session 1 – Page 15**

1:30pm – 2:30pm – Holiday Ballroom 1 – Level 2  
**Bioengineering Slide Session 1 – Page 16**

1:30pm – 2:30pm – Holiday Ballroom 2 – Level 2  
**Bioengineering Invited Speakers 1 – Page 17**

3:45pm – 5:15pm – Holiday Ballroom 1 – Level 2  
**Bioengineering Slide Session 2 – Page 17**

3:45pm – 4:45pm – Holiday Ballroom 2 – Level 2  
**Bioengineering Invited Speakers 2 – Page 17**

8:00am – 5:00pm – Exhibit Hall – Level 2  
**Bioengineering Poster Session 1 – Page 17**

1:30pm – 5:05pm – Holiday Ballroom 3 – Level 2  
**International Society for Apheresis Session – Page 18**

1:30pm – 3:00pm – Key Ballroom 7 – Level 2  
**Pulmonary Lecture & Slide Session 1 – Page 18**

3:45pm – 5:15pm – Key Ballroom 7 – Level 2  
**Pulmonary Slide Session 2 – Page 19**

8:00am – 5:00pm – Exhibit Hall – Level 2  
**Pulmonary Poster Session 1 – Page 19**

5:30pm – 6:30pm – Key Ballroom South Foyer – Level 2  
**Welcome Reception – Page 19**

## FRIDAY, MAY 28, 2010

8:00am – 10:00am – Holiday Ballroom 3 – Level 2  
**Intensive Dialysis Day General Session – Page 20**

12:15pm – 1:15pm – Johnson A, B – Lobby Level  
**Renal Working Luncheon – Page 20**

1:30pm – 4:45pm – Holiday Ballroom 3 – Level 2  
**Renal Parallel Session A – Page 20**

1:30pm – 3:00pm – Holiday Ballroom 4 – Level 2  
**Renal Parallel Session B – Page 20**

3:45pm – 4:30pm – Holiday Ballroom 4 – Level 2  
**Renal Slide Session 1 – Page 20**

8:00am – 5:00pm – Exhibit Hall – Level 2  
**Renal Poster Session 1 – Page 21**

8:00am – 12:15pm – Key Ballroom 8, 11, 12 – Level 2  
**General Session 2 – Page 21**

11:45am – 12:15pm  
**Barney Clark Award Presentation & the ASAI0 Willem J  
Kolff – Don B Olsen Award Presentation– Page 22**

12:15pm – 1:15pm – Tubman A, B – Level 3  
**Working Luncheon – Page 22**

1:30pm – 5:00pm – Exhibit Hall – Level 2  
**Special Interactive Exhibit – Page 22**

1:30pm – 3:00pm – Key Ballroom 7 – Level 2  
**Pulmonary Lecture & Slide Session 3 – Page 22**

3:45pm – 4:45pm – Key Ballroom 7 – Level 2  
**Special Session IFAO – ESAO – Page 22**

1:30pm – 3:00pm – Key Ballroom 9 – Level 2  
**Cardiac Slide Session 3 – Page 23**

1:30pm – 2:45pm – Key Ballroom 10 – Level 2  
**Cardiac Invited Speakers 3 – Page 23**

3:45pm – 5:30pm – Key Ballroom 9 – Level 2  
**Cardiac Slide Session 4 – Page 23**

8:00am – 5:00pm – Exhibit Hall – Level 2  
**Cardiac Poster Session 2 – Page 23**

1:30pm – 3:00pm – Holiday Ballroom 1 – Level 2  
**Bioengineering Slide Session 3 – Page 25**

1:30pm – 3:00pm – Holiday Ballroom 2 – Level 2  
**Bioengineering Invited Speakers 3 – Page 25**

3:45pm – 5:15pm – Holiday Ballroom 1 – Level 2  
**Bioengineering Slide Session 4 – Page 25**

3:45pm – 4:45pm – Holiday Ballroom 2 – Level 2  
**Bioengineering Invited Speakers 4 – Page 25**

8:00am – 5:00pm – Exhibit Hall – Level 2  
**Bioengineering Poster Session 2 – Page 26**

1:30pm – 4:15pm – Carroll A, B – Level 3  
**Neural Session – Page 26**

1:30pm – 4:15pm – Paca A, B – Level 3  
**Pediatric Session – Page 26**

5:30pm – 6:00pm – Carroll A, B – Level 3  
**ASAIO Members Business Meeting – Page 27**

### **SATURDAY, MAY 29, 2010**

8:00am – 12:00pm – Key Ballroom 8, 11, 12 – Level 2  
**General Session 3 – Page 27**

9:00am – 10:30am  
**New Venture Forum – Page 27**

1:00pm – 3:00pm – Key Ballroom 10 – Level 2  
**Commercialization Session – Page 27**

1:00pm – 2:30pm – Key Ballroom 9 – Level 2  
**Cardiac Slide Session 5 – Page 28**

8:00am – 12:00pm – Exhibit Hall – Level 2  
**Cardiac Poster Session 3 – Page 28**

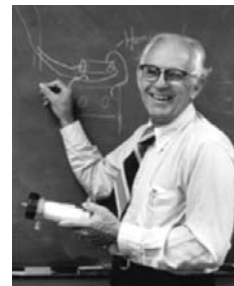
1:00pm – 2:30pm – Key Ballroom 7 – Level 2  
**Pulmonary Slide Session 4 – Page 29**

1:00pm – 2:30pm – Holiday Ballroom 1 – Level 2  
**Bioengineering Slide Session 5 – Page 29**

8:00am – 12:00pm – Exhibit Hall – Level 2  
**Bioengineering Poster Session 3 – Page 30**

## **BELDING H SCRIBNER, MD 50TH ANNIVERSARY**

In March 1960, Belding Scribner, head of the Division of Nephrology at the University of Washington's Medical School and Wayne Quinton, head of the University Hospital's Instrument Shop, developed the Teflon Shunt that for the first time made long term Hemodialysis for chronic renal failure possible. The first patient, Clyde Shields, had a shunt implanted on March 9, 1960 by David Dillard, a pediatric cardiac surgeon, and went on to live for 11 years on Hemodialysis. The first Reports on this were published in the 1960 Transactions of ASAIO. Some later developments by Scribner and his colleagues included the world's first out-of-hospital dialysis center, the use of proportioning pumps to prepare dialysate, home hemodialysis, home peritoneal dialysis, the Tenckhoff catheter, the square meter-hour and middle-molecule hypotheses, and the Hickman catheter. Throughout the 1960's and the early 1970's, Seattle was the Mecca for those interested in chronic dialysis. As Scribner said later the successful treatment of Clyde Shields represents "one of the few instances in medicine where a single success was all that was required to validate a new therapy." From that one patient there are now many more than a million and a half people throughout the world alive today wither on dialysis or with a kidney transplant.



# Learn How Nanotechnology is Impacting Medicine and Engineering

The *Journal of Nanotechnology in Engineering and Medicine* focuses on how nanotechnology is impacting medicine and what the potential is for its future in all fields of science, engineering and clinical arenas, including:

- Cardiology
- Neurology and neurosurgery
- Oncology
- Diabetes
- Metabolic Disorders

Learn the most important developments of clinicians, engineers and scientists on new nanomedical technologies.

You get the latest in electronic organic sensors and nano and micro-engineering as they apply to monitoring and control of various human diseases and disorders.



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Submit a paper for publication or browse the current issue of the *Journal of Nanotechnology in Engineering and Medicine* (table of contents and abstracts) on the ASME Digital Library:

[www.asmedl.org/NANO](http://www.asmedl.org/NANO)

8:00am - 8:30am

**RAPID FIRE FLASH PRESENTATIONS**

Five Abstracts have been selected for presentation in the New Rapid Fire format. Authors will have five minutes to present up to three slides. Please direct all questions to the speaker at their poster board in the Exhibit Hall.

**Hemolysis Rate after Biventricular Centrifugal Ventricular Assist Device Implantation: Preliminary Data of Clinical Study**

*\*\*Alexander Stepanenko, MD - Deutsches Herzzentrum Berlin*

**Clinical Predictors for Long Hospital Stay after Left Ventricular Assist Device (LVAD) Implantation**

*\*\*Ian Ledford - Intermountain Medical Ctr*

**Gas Exchange Performance of a Silicon Nanoporous Membrane on a Liquid-Gas System**

*\*\*Fernando Casas, PhD - Cleveland Clinic*

**Different Flow Conditions Do Not Adversely Affect Integrity and Activation of the Endothelial Surface of a Novel Artificial Gas Exchange Membrane**

*\*\*Bettina Wiegmann, MD - Hannover Medical School*

**Two-Pool Physical Simulator of the Inter-Compartmental Mass Transfer during Dialysis**

*\*\*Giustina Casagrande, PhD - Politecnico di Milano*

8:30am - 12:15pm

**GENERAL SESSION 1 - THURSDAY**

**"Opportunities for Innovation in the Face of Healthcare Reform"**

Room: Key Ballroom 8, 11, 12 - Level 2

Chairmen: William Holman, MD & Kurt Dasse, PhD

8:30am - 9:30am

**SYMPOSIUM**

**IT / Bioinformatics / Healthcare**

*John Giobbi - President & CEO, Proxense LLC*

*Ryan Gallivan, MD - Medical Advisor Otolaryngology, Proxense LLC*

9:30am - 10:00am

**KEYNOTE ADDRESS**

**The Future Impact of Healthcare Reform in the United States and the Regulatory Climate on Medical Device Innovation**

*Roger Evans, PhD - CEO, Transplant Professionals LLC*



10:00am - 10:45am

**VISIT EXHIBITS & POSTERS - ENJOY REFRESHMENTS**

Exhibit Area: Key Ballroom 6 - Level 2

10:45am - 11:45am

**SYMPOSIUM**

**International Perspectives on Healthcare Reform**

**Changes in Healthcare Reform in Europe**

*Emma Birks, MRCP, PhD - Prof Medicine, Univ of Louisville*

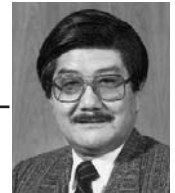
**Changes in Healthcare Reform in Asia**

*\*\*Takeshi Nakatani, MD, PhD - Dir Organ Transplantation, Nat'l Cardiovascular Ctr*

11:45am - 12:15pm

**ASAIO Y NOSÉ INTERNATIONAL FELLOWSHIP PRESENTATION**

*\*\*Takashi Nishimura, MD, PhD - Univ of Tokyo*



*Dr. José*

12:15pm - 1:15pm

**WORKING LUNCHEON - Admission by Ticket**

Room: Tubman A, B - Level 3

*Sponsored by EvaHeart Medical Inc.*

**Decreasing Complications with VAD Support - Role of Physician & Industry**

*\*\*Ranjit John, MD - Asst Prof Surgery, Univ of Minnesota*

1:30pm - 5:15pm

**CARDIAC TRACK**

1:30pm - 3:00pm

**CARDIAC SLIDE SESSION 1**

**Short Term Circulatory Support**

Room: Key Ballroom 9 - Level 2

*Moderators: Ranjit John, MD & Jeffrey Morgan, MD*

**1:30pm Use of the Levitronix Left Ventricular Assist Device for Treating Postcardiotomy Cardiogenic Shock**

*Mehmet Akay - Texas Heart Inst*

**1:45pm Outcomes with the Levitronix CentriMag as Cardiopulmonary Support (CPS) for Cardiogenic Shock**

*\*\*Pere Ventura, BS - Intermountain Medical Ctr*

**2:00pm CentriMag-ECMO in Management of Acute Heart Failure Syndrome and Beyond**

*\*\*Aly El Banayosy, MD - Penn State Univ*

**2:15pm Recovery: To Explant or Not To Explant**

*Joshua Baker, MD - Massachusetts General Hospital*

**2:30pm Comparison of Circulatory Support with IABP and Impella 2.5LP**

*Stephanie Schampaert, BS - Eindhoven Univ of Technology*

**2:45pm Remote Cannulation for CentriMag Right Ventricular Support To Reduce In Hospital Morbidity**

*Matthew Schiralli, MD - Univ of Rochester*

1:30pm - 3:00pm

**CARDIAC INVITED SPEAKERS 1**

Room: Key Ballroom 10 - Level 2

Moderators: Egemen Tuzun, MD & Peter Wearden, MD, PhD

1:30pm - 2:00pm

**SYMPOSIUM**

**Next Trial for REVIVE - IT**

**The Need and the Challenge**

Leslie Miller, MD - Walters Chair CV Medicine, Georgetown Univ Hospital

**REVIVE - IT Trial Update**

\*\*Timothy Baldwin, PhD - Prog Dir NHLBI, NIH

2:00pm - 2:30pm

**DEBATE**

**Control Based on Venous Return - Is It Enough?**

\*\*Robert Benkowski, BSME - COO, MicroMed Cardiovascular Inc

\*\*Heinrich Schima, PhD - Prof Physics & Biomed Eng, Medical Univ Vienna

2:30pm - 3:00pm

**FDA's Role & Position on the Harmonization By Doing Initiative**

\*\*Eric Chen, MS - Biomedical Engineer, FDA

3:00pm - 3:45pm

**VISIT EXHIBITS & POSTERS - ENJOY REFRESHMENTS**

Exhibit Area: Key Ballroom 6 - Level 2

3:45pm - 5:15pm

**CARDIAC SLIDE SESSION 2**

**Continuous Flow Pumps - Technical Consideration**

Room: Key Ballroom 9 - Level 2

Moderators: Greg Burgreen, PhD & Roberta Bogaev, MD

**3:45pm Algorithm for HeartMate II LVAD Speed Adjustments in the Perioperative Period**

Joshua Baker, MD - Massachusetts General Hospital

**4:00pm Fluidic Performance Via Intrinsic Parameters of a Magnetically Levitated Axial Flow VAD**

Mark Olles, PhD - Rochester Inst of Technology

**4:15pm Methodology of Hemolysis Testing of Mechanical Circulatory Support Devices**

\*\*Michael Sobieski, RN, CCP - Univ of Louisville

**4:30pm Study on Improvement of Performance of Axial Flow Pump by Improving the Motor**

Shin Furukawa, MS - Tokyo Denki Univ

**4:45pm In Vitro Hemolysis Study in a Nonpulsatile Implantable VAD: The Effect of Head Pressure and Flow**

\*\*Branka Lukic, MS - Penn State Univ

**5:00pm Evaluation of Ventricular Relaxation during Mechanical Cardiac Assist with Rotary Blood Pumps**

\*\*Francesco Moscato, PhD - Medical Univ of Vienna

3:45pm - 5:15pm

**CARDIAC INVITED SPEAKERS 2**

Room: Key Ballroom 10 - Level 2

Moderators: David Farrar, PhD & Edwin McGee, MD

3:45pm - 4:15pm

**Proteomics to Study Cardiac Remodeling**

Giulio Agnetti, PhD - Postdoctoral Research Fellow, John Hopkins Univ

4:15pm - 4:45pm

**Designing LVAD Trials - FDA Perspective**

\*\*Eric Chen, MS - Biomedical Engineer, FDA

4:45pm - 5:15pm

**Do You Like Your LVAD With or Without Warfarin? New VAD Design to Avoid Systemic Anticoagulation**

\*\*Egemen Tuzun, MD - Asst Dir CV Surgery Research Labs, Texas Heart Inst

8:00am - 5:00pm

**CARDIAC POSTER SESSION 1**

Room: Exhibit Area - Key Ballroom 6 - Level 2

**Posters Available All Day**

**Board #**

- 1 **Newly Developed Mini-Axial Flow Pump: Apex Pump**  
\*\*Guorong Li, MD - Fu Wai Hospital
- 2 **Hemolysis Rate after Biventricular Centrifugal Ventricular Assist Device Implantation: Preliminary Data of Clinical Study**  
\*\*Alexander Stepanenko, MD - Deutsches Herzzentrum Berlin
- 3 **Biventricular Mechanical Support with Two Implantable Assist Devices**  
Thomas Krabatsch, MD, PhD - German Heart Inst
- 4 **Clinical Predictors for Long Hospital Stay after Left Ventricular Assist Device (LVAD) Implantation**  
\*\*Ian Ledford - Intermountain Medical Ctr
- 5 **Causes of Mortality in Stable Destination Therapy Patients**  
\*\*Douglas Horstmanhof, MD - Integris Advanced Cardiac Care
- 6 **In Vivo Biocompatibility Evaluation of a New Surfactant Polymer Coating Mimicking the Glycocalyx of Endothelial Cells**  
Akira Shiose, MD, PhD - Cleveland Clinic

- 7 **Stability of Unloading-Induced Cardiac Improvement in Patients with Chronic Non-Ischemic Cardiomyopathy: Predictive Value for Transplant-Free Outcome after Ventricular Assist Device Implantation**  
*Michael Dandel, MD, PhD - Deutsches Herzzentrum Berlin*
- 8 **Development of the Implantable Axial Flow Pump LVAD with the Hydrodynamic Bearings**  
*\*\*Tomonori Tsukiya, PhD - Nat'l Cardiovascular Research Ctr*
- 9 **Low Rate of Thromboembolism with the INCOR Ventricular Assist Device: Design Changes and Initial Clinical Results**  
*\*\*Andreas Arndt, PhD - Berlin Heart GmbH*
- 10 **Pre-Clinical Evaluation of MITIHEART® LVAD**  
*Andrew Hunsberger, MS - MiTiHeart Corporation*
- 11 **A Novel Counterpulsation Drive Mode in a Continuous-Flow Left Ventricular Assist Device - Effect on Coronary Circulation**  
*Masahiko Ando, MD - Nat'l Cardiovascular Research Ctr*
- 12 **Left Ventricular Assist for Pediatric Patients**  
*Masahide Komagamine, MD - Tokyo Women's Medical Univ*
- 13 **Left Ventricular Mechanical Support with the Impella Afford More Recovery Potential in Failing Hearts Than Extracorporeal Membrane Oxygenation**  
*Dai Kawashima, MD - Univ of Tokyo*
- 14 **The Effect of Continuous Flow Left Ventricular Assist Devices (CF-LVAD) on Aortic Valve Competence**  
*\*\*Jerson Martina, MSc - Univ Medical Ctr Utrecht*
- 15 **Adult Candidates for Heart Transplantation with Larger Body Surface Area Profit More from Mechanical Circulatory Support**  
*\*\*Takeshi Komoda, MD, PhD - Deutsches Herzzentrum Berlin*
- 16 **Does Ejection Fraction Predict Response to Biventricular Pacing after Cardiac Surgery?**  
*\*\*Michelle Spotnitz, MD - UMDNJ - Robert Wood Johnson*
- 17 **Driveline Infection and Bacteremia in Continuous-Flow LVAD Patients Increases Duration of LVAD Support**  
*Forum Kamdar, MD - Univ of Minnesota*
- 18 **Reduction in Device-Related Infections with the HeartMate II Left Ventricular Assist Device**  
*\*\*Jeffrey Morgan, MD - Henry Ford Hospital*
- 19 **Development of a Novel Skin Penetrating Pad for Preventing the Exit Site Infection of VAD Driveline**  
*Toshihide Mizuno, DVM, PhD - Nat'l Cardiovascular Research Ctr*
- 20 **Pump Flow Estimation in cf-LVAD Patients Requires Dynamic Pump Models**  
*Marcel Rutten, PhD - Eindhoven Univ of Technology*
- 21 **Renal Dysfunction in Patients Receiving Continuous-Flow Left Ventricular Assist Devices Adversely Affects Survival**  
*Forum Kamdar, MD - Univ of Minnesota*
- 22 **Self-Expanding Venous Cannulae for Pediatric CPB**  
*Saad Abdel-Sayed, PhD - Univ Hospital CHUV*
- 23 **Turbulence Modeling as a Source of Error in FDA's "Critical Path" Interlaboratory Computational Study of Flow in a Nozzle Model**  
*Sandy Stewart, PhD - FDA*
- 24 **An Ovine Model of Postinfarction Remodeling**  
*Bart Meyns, MD, PhD - Univ Hospitals Leuven*
- 25 **Management of Patent Foramen Ovale during HeartMate LVAD Placement**  
*\*\*Walter Dembitsky, MD - Sharp Memorial Hospital*
- 26 **Novel Combined Maglev Actuator for the BiVACOR**  
*\*\*Toru Masuzawa, PhD - Ibaraki Univ*
- 27 **Differences in Regional Myocardial Perfusion, Metabolism, MVO<sub>2</sub> and Edema after 12 Hour Coronary Sinus Machine Perfusion Preservation of Canine Hearts**  
*Michael Cobert, MS - Univ of Texas Southwestern*
- 28 **Sensorless Fuzzy Logic Control of a Rotary VAD: In Vivo Performance**  
*\*\*Fernando Casas, PhD - Cleveland Clinic*
- 29 **HeartMate II LVAD Support in Patients with Mechanical Mitral Valves**  
*Mehmet Akay - Texas Heart Inst*
- 30 **Comprehensive Fluid Dynamic Assessment of a Bileaflet Mitral Bioprosthesis**  
*Jonathan Hill - Univ of South Carolina*
- 1:30pm - 4:45pm**  
**BIOENGINEERING TRACK**
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- 1:30pm - 2:30pm**  
**BIOENGINEERING SLIDE SESSION 1**
- 
- Neural & Auditory Bioengineering**  
Room: Holiday Ballroom 1 - Level 2  
*Moderators: Steven Koenig, PhD & Antonio Ferreira, PhD*
- 1:30pm Development of a New Antithrombogenic Cerebral Stent Using Ion Beam Surface Modification - A Five Year Animal Study**  
*\*\*Yochi Sugita, MD - Baylor College of Medicine*

**1:45pm A Novel Neurovascular Stent Covered in Stretchable Thin Film NiTi Significantly Decreases Flow into a Wide-Neck Aneurysm In Vitro**  
*\*\*Youngjae Chun, PhD - UCLA*

**2:00pm Liposome-Encapsulated Hemoglobin Alleviates Hearing Loss after Transient Cochlear Ischemia and Reperfusion**  
*\*\*Akira Kawaguchi, MD, PhD - Tokai Univ*

**2:15pm Brain Based Electrospun Tissue Scaffolds: A Parametric Study**  
*\*\*Kevin Aroom, MS - Univ of Texas*

**1:30pm - 2:30pm**  
**BIOENGINEERING INVITED SPEAKERS 1**

Room: Holiday Ballroom 2 - Level 2  
*Moderators: James Antaki, PhD & Roshni Patel, MS*

**1:30pm - 2:30pm Conclusions Drawn at the "First International ECMO Conference"**  
**Jointly Sponsored by ASAIO & Penn State Hershey**

**2:30pm - 3:00pm Artificial Muscles**  
*Mohsen Shahinpoor, PhD - Richard C Hill Prof & Chair Mech Eng, UMaine*

**3:00pm - 3:45pm**

**VISIT EXHIBITS & POSTERS - ENJOY REFRESHMENTS**

Exhibit Area: Key Ballroom 6 - Level 2

**3:45pm - 5:15pm**  
**BIOENGINEERING SLIDE SESSION 2**

**Blood Substitutes & Pediatric Cardiopulmonary Bypass**

Room: Holiday Ballroom 1 - Level 2  
*Moderators: Conrad Zapanta, PhD & Keefe Manning, PhD*

**3:45pm Hemotech-Blood Substitute Role in the Prevention of Platelet Activation in Percutaneous Coronary Intervention (PCI) Patients**  
*\*\*Jan-Stanley Simoni, DVM, PhD - Texas Tech Univ*

**4:00pm Delaying Blood Transfusion during Extreme Anemia with Perfluorocarbon Emulsion**  
*\*\*Pedro Cabrales, PhD - Univ of California*

**4:15pm In Vitro Observations of the Fluid Mechanics inside the Penn State PVAD Using Blood Analogs of Varying Hematocrits**  
*\*\*Breigh Roszelle, BS - Penn State Univ*

**4:30pm Left Ventricular Mechanoenergetic Cost of Blood and Plasma Viscosity during Hemodilution**  
*\*\*Pedro Cabrales, PhD - Univ of California*

**4:45pm Effect of Liposome-Encapsulated Hemoglobin on Antigen-Presenting Activity**  
*\*\*Akira Kawaguchi, MD, PhD - Tokai Univ*

**5:00pm Preliminary Experimental Validation of a Pressure-Regulated Volume-Controlled Liquid Ventilation Mode**  
*\*\*Raymond Robert, PhD, MSc - Univ de Sherbrooke*

**3:45pm - 4:45pm**  
**BIOENGINEERING INVITED SPEAKERS 2**

Room: Holiday Ballroom 2 - Level 2  
*Moderators: Kenneth Solen, PhD & Mickey Ising, BS*

**3:45pm - 4:15pm**  
**Translational Biomedical Engineering for Artificial Organ Research & Development**  
*Bastian de Mol, MD, PhD - Prof CT Biomechanics, Academic Medical Center*

**4:15pm - 4:45pm**  
**Bioengineering Challenges In Engineered Tissue Valves**  
*Michael Sacks, PhD - John A Swanson Chair Bioeng, Univ of Pittsburgh*

**8:00am - 5:00pm**  
**BIOENGINEERING POSTER SESSION 1**

**Artificial Organ & Blood Substitute Development**

Room: Exhibit Area - Key Ballroom 6 - Level 2

**Posters Available All Day**

**Board #**

**31 Pre-Transplant Kidney-Specific Treatment To Eliminate the Need for Systemic Immunosuppression**  
*\*\* Lauren Brasile, PhD - Breonics*

**32 Apparatus for Measuring the Effect of Apical Torsion on Functioning Isolated Hearts**  
*Dennis Trumble, MS - Carnegie Mellon Univ*

**33 Development of a Highly Efficient Non-Viral Vector for Cardiac Gene Therapy**  
*Zhou Min, MD, PhD - Nat'l Cardiovascular Research Inst*

**34 Novel Percutaneous Implant Model for Pre-Clinical Testing**  
*\*\*Kelly Chapman, BSME - IncuMed Research Organization*

**35 Different Flow Conditions Do Not Adversely Affect Integrity and Activation of the Endothelial Surface of a Novel Artificial Gas Exchange Membrane**  
*\*\*Bettina Wiegmann, MD - Hannover Medical School*

**36 VA ECMO Setting Optimization in Patients Suffering from Cardiogenic Shock**  
*\*\*David Macku, MD, MSc - Czech Technical Univ*

**37 Molecular Surgery for the Treatment of Malignant Tumors**  
*\*\*Kazuhide Ohta, DVM, PhD - Baylor College of Medicine*

- 38 **Liver Regeneration by Portal Cell Therapy: Transplanted Human Cord Blood Derived Unrestricted Somatic Stem Cells Generate Hepatocyte-Like Cells through Transdifferentiation but Not Cell Fusion**  
*Alireza Ghodsizad, MD - Univ of Heidelberg*
- 39 **Two-Pool Physical Simulator of the Inter-Compartmental Mass Transfer during Dialysis**  
*\*\*Giustina Casagrande, PhD - Politecnico di Milano*
- 40 **Plasmapheresis through a Microfabricated Silicon Nanofilter**  
*\*\*Edward Leonard, PhD - Columbia Univ*
- 41 **Regulated Delivery of IGF-1 Using Localizable Microencapsulated Genetically Modified Cells**  
*\*\*Roshni Patel, MS - Brown Univ*
- 42 **Expanding Capsule for Diet Control**  
*\*\*Tomoyuki Yambe, MD, PhD - Tohoku Univ*
- 43 **Surgical Correction of Ptosis by Ionic Polyacrylonitrile Artificial Muscles**  
*Mohsen Shahinpoor, PhD - Univ of Maine*
- 44 **Sustained Release Nitric Oxide from Long Lived Circulating Nanoparticles**  
*\*\*Pedro Cabrales, PhD - Univ of California*
- 45 **Drinking Mechanism for an Artificial Esophagus and Super Stent System**  
*\*\*Tomoyuki Yambe, MD, PhD - Tohoku Univ*
- 46 **Effects of Storage Time and ABO Group on Male and Female Donor Red Blood Cell Suspension Viscoelasticity**  
*\*\*Amanda Daly, BS - Univ of Pittsburgh*
- 47 **Study of the Influence of Lecithin Concentration on the Stability of Perfluorooctyl Bromide Emulsions**  
*Camila Castro, MSc - Univ de Los Andes*

1:30pm - 5:05pm

**INTERNATIONAL SOCIETY FOR APHERESIS SESSION**

**Apheresis Therapy I**

Room: Holiday Ballroom 3 - Level 2

Moderators: *Andre Kaplan, MD & Patrick Moriarty, MD*

1:30pm - 1:50pm

**Selective Apheresis Technologies - Current Status and Future Perspectives**

*Wolfgang Ramlow, MD - Medical Director, Clinic for Neph, Dialysis & Apheresis*

1:50pm - 2:10pm

**Apheresis Therapy in Immune-Mediated Vasculitides**

*\*\*Andre Kaplan, MD - Prof Medicine, University of Connecticut Health Ctr*

2:10pm - 2:30pm

**Apheresis Therapy in Solid Organ Transplantation**

*Jan Kielstein, MD, PhD - Asst Prof Medicine, Medical School Hannover*

2:30pm - 2:50pm

**Current Status of Apheresis Therapy in Sepsis and Liver Failure**

*\*\*Dieter Falkenhagen, MD, PhD - Head Clinical Med & Biotech, Danube Univ at Krems*

3:00pm - 3:45pm

**VISIT EXHIBITS & POSTERS - ENJOY REFRESHMENTS**

Exhibit Area: Key Ballroom 6 - Level 2

**Apheresis Therapy II**

Moderators: *Paul Malchesky, D Eng & Wolfgang Eamlow, MD*

3:45pm - 4:05pm

**Adsorptive Cytapheresis - An Effective Treatment Option in Inflammatory Bowel Diseases**

*Ken Fukunaga, MD, PhD - Asst Prof Medicine, Hyogo College of Medicine*

4:05pm - 4:25pm

**Apheresis Therapy in Neurological Diseases - Current Status and Future Perspectives**

*Chang-Sung Koh, MD, PhD - Prof Medicine, Shinshu University*

4:25pm - 4:45pm

**Immunoabsorption in Idiopathic Dilated Cardiomyopathy**

*Lars Herda, MD - Univ Greifswald*

4:45pm - 5:05pm

**Rheological Effects of Lipid Apheresis**

*Patrick Moriarty, MD - Clinical Pharmacology, Univ of Kansas*

1:30pm - 5:15pm

**PULMONARY TRACK**

1:30pm - 3:00pm

**PULMONARY LECTURE & SLIDE SESSION 1**

Room: Key Ballroom 7 - Level 2

Moderators: *Joseph Zwischenberger, MD & Jonathan Haft, MD*

*Sponsored by MC3 Inc.*

1:30pm - 2:00pm

**Using ECMO as an Ambulatory Bridge to Lung Transplantation**

*Bartley Griffith, MD - Prof & Chief Cardiac Surgery, Univ of Maryland*

**2:00pm ECMO in Patients with Shock, Predictors of Survival**

*David Spurlock, MD - Univ of Michigan*

**2:15pm Retrospective Analysis of Venovenous Versus Venoarterial Extracorporeal Membrane Oxygenation for Treatment of Post Lung Transplantation Primary Graft Failure**

*\*\*Matthew Bacchetta, MD - Columbia Univ*

- 2:30pm**    **Transfusion Requirements with a New Miniaturized System for Extracorporeal Membrane Oxygenation (ECMO) in Adult Respiratory Failure**  
*Daniele Camboni, MD - Univ Hospital Regensburg*
- 2:45pm**    **An Ultra-Durable Heparin-Free Pediatric and Adult ECMO Systems and Its Clinical Application in Japan**  
*\*\*Nobumasa Katagiri, ME - Nat'l Cardiovascular Ctr Research Inst*  
**ASAIO Willem J Kolff - Don B Olsen Award Recipient**

**3:00pm - 3:45pm**

**VISIT EXHIBITS & POSTERS - ENJOY REFRESHMENTS**

Exhibit Area: Key Ballroom 6 - Level 2

**3:45pm - 5:15pm**

**PULMONARY SLIDE SESSION 2**

Room: Key Ballroom 7 - Level 2

Moderators: *Michael Sobieski, RN, CCP & Keith Cook, PhD*

- 3:45pm**    **Extracorporeal Life Support as Rescue Therapy Following Sudden Cardiac Arrest Death**  
*Pasquale Totaro, MD, PhD - IRCCS Foundation S Matteo*
- 4:00pm**    **Percutaneous Cardiopulmonary Support Using Emergency Bypass System: Clinical Portfolio from Single Center Experience of 103 Cases**  
*\*\*Cheong Lim, MD, PhD - Seoul National Univ*
- 4:15pm**    **Safe Transport of Critically Ill Patients on Extracorporeal Membrane Oxygenation Support**  
*\*\*Matthew Bacchetta, MD - Columbia Univ*
- 4:30pm**    **Efficacy of Extracorporeal CO2 Removal with the Hemolung: Results in Animals**  
*\*\*Peter Wearden, MD, PhD - Children's Hospital of Pittsburgh*
- 4:45pm**    **Extracorporeal Support in Non-Heparinized Donors after Cardiac (DCD)**  
*\*\*Alvaro Rojas, MD - Univ of Michigan*
- 5:00pm**    **A Microfluidic Respiratory Assist Device with High Gas Permeability for Artificial Lung Applications**  
*Jeffrey Borenstein, PhD - Draper Laboratory*

**8:00am - 5:00pm**

**PULMONARY POSTER SESSION 1**

Room: Exhibit Area - Key Ballroom 6 - Level 2

**Posters Available All Day**

**Board #**

- 48**        **Effects of the Molecular Mass of Tense-State Polymerized Bovine Hemoglobin on Blood Pressure and Vasoconstriction**  
*\*\*Pedro Cabrales, PhD - Univ of California*

- 49**        **Gas Exchange Performance of a Silicon Nanoporous Membrane on a Liquid-Gas System**  
*\*\*Fernando Casas, PhD - Cleveland Clinic*
- 50**        **Transesophageal Echo Guidance Facilitates Percutaneous Placement of the Avalon Elite™ Cannula for ECMO**  
*\*\*Mark Bonnell, MD - Univ of Kentucky*
- 51**        **Mathematical Model of an Extra-Corporeal Support System**  
*Alejandro Mendoza Garcia - Technical Universita Munchen*
- 52**        **A New Venovenous Perfusion-Induced Systemic Hyperthermia Circuit for Advanced Lung Cancer Therapy**  
*\*\*Cherry Croft, PhD - Univ of Kentucky*
- 53**        **Silicone Hollow Sphere Fibers (SHSF): A New Concept for Capillary Membrane Oxygenators (CMO)**  
*Khosrow Mottaghy - RWTH Aachen Univ*
- 54**        **Computational Evaluation of the Pediatric Scaled Pump-Lung (PediPL) Device**  
*\*\*Mustafa Ertan Taskin, PhD - Univ of Maryland*
- 55**        **Structural Analysis for Constructing a Balloon Type Extracorporeal Membrane Oxygenator Using CFD Analysis**  
*\*\*Young Ran Park, MS - Chonbuk National Univ*
- 56**        **Impedance and Right Ventricular Function in the Hypertensive Pulmonary System**  
*Begum Akay, MD - Univ of Michigan*
- 57**        **Novel Bridge to Lung Transplantation in Pulmonary Hypertension Using Atrial Septostomy and Veno-Venous Extracorporeal Life Support**  
*Peter Sassalos, MD - Univ of Michigan*
- 58**        **Converting the Redy 2000 Dialysis Machine to an Artificial Gills Machine That Delivers Dissolved Oxygen in Aquatic Phase**  
*\*\*Mohamed Elnachef, MD - SIOF Institute*

**5:30pm - 6:30pm**

**ASAIO WELCOME RECEPTION - ADMISSION BY TICKET**

Room: Key Ballroom South Foyer - Level 2

**INTENSIVE DIALYSIS DAY**

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8:00am - 10:00am

**RENAL GENERAL SESSION - FRIDAY**

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**"Intensive Outpatient Dialysis, Long and Short"**

Room: Holiday Ballroom 3 - Level 2

*Chairman: William Fissell, MD*

8:00am - 9:00am

**Improving Outcomes Through Intensive Hemodialysis***Philip McFarlane, MD - Medical Dir Nephrology, Univ of Toronto*

9:00am - 10:00am

**Home Hemodialysis and Short Daily Hemodialysis***\*\*Christopher Blagg, MD - Executive Director, Northwest Kidney Centers*

10:00am - 10:45am

**VISIT EXHIBITS & POSTERS - ENJOY REFRESHMENTS**

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Exhibit Area: Key Ballroom 6 - Level 2

10:45am - 12:00pm

**CIRCULATE AND VISIT EXHIBITS & POSTERS**

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12:15pm - 1:15pm

**RENAL WORKING LUNCHEON - Admission by ticket**

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**A Nurse Manager's Perspective on Intensive Maintenance Hemodialysis**

Room: Johnson A, B - Lobby Level

**Sponsored by Fresenius Medicare Care***Introduction**David Smith, RN, CHN - Manager Operations, Fresenius Medical Care NA**Lynda Newman, MSN, RN, ACNS-BC, CNN - Clinical Coordinator Home Dialysis, Case Medical Ctr***RENAL PARALLEL SESSIONS**

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1:30pm - 4:45pm

**RENAL TRACK A**

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**Nuts and Bolts of Intensive Outpatient Therapies**

Room: Holiday Ballroom 3 - Level 2

*Moderator: Andre Kaplan, MD*

1:30pm - 2:00pm

**Tenuous Economics of a Nocturnal Program***Robert Provenzano, MD - Dir Nephrology, St Johns Hospital & Medical Center*

2:00pm - 2:30pm

**Practical Matters In Setting Up a Nocturnal Program***Karl Schwarze, MD - Chief Nephrology, Akron Nephrology Associates*

2:30pm - 3:00pm

**Discussion**

3:00pm - 3:45pm

**VISIT EXHIBITS & POSTERS - ENJOY REFRESHMENTS**

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Exhibit Area: Key Ballroom 6 - Level 2

3:45pm - 4:15pm

**Technical and Practical Aspects of Daily Dialysis***Robert Provenzano, MD Dir Nephrology, St Johns Hospital & Medical Ctr*

4:15pm - 4:45pm

**Nocturnal Home Hemodialysis with an Eye Toward Long Term Survival of the Program***Lynda Newman, MSN, RN, ACNS-BC, CNN - Clinical Coordinator Home Dialysis, Case Medical Ctr*

1:30pm - 3:00pm

**RENAL TRACK B. NOVEL MEMBRANE TECHNOLOGIES**

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Room: Holiday Ballroom 4 - Level 2

*Moderator: William Fissell, MD*

1:30pm - 2:00pm

**Controlled Pore Geometries for Enhanced Selectivity***\*\*William Fissell, MD - Assoc Staff, Cleveland Clinic*

2:00pm - 2:30pm

**Anodized Alumina Membranes***\*\*Zhongping Huang, PhD - Asst Prof Mech Eng, Widener Univ*

2:30pm - 3:00pm

**Annealed Silicon Nanoporous Membranes***Christopher Striemer, PhD - VP Engineering, SIMPore Inc*

3:00pm - 3:45pm

**VISIT EXHIBITS & POSTERS - ENJOY REFRESHMENTS**

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Exhibit Area: Key Ballroom 6 - Level 2

3:45pm - 4:30pm

**RENAL SLIDE SESSION 1**

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Room: Holiday Ballroom 4 - Level 2

**3:45pm Tidal Peritoneal Dialysis (TPD) Using Low Tidal (TV) and Reserve (RV) Volumes: Towards an Automated Wearable Artificial Kidney (AWAK)***\*\*Martin Roberts, PhD - VA Greater Healthcare Systems***4:00pm Plasma Levels of Piperacillin and Tazobactam In Vitro Model of CVVHDF***Gisella Vischini, MD - S Eugenio Hospital***4:15pm Possible Treatment of Hyperphosphatemia during Dialysis Using a Phosphate Binding Column and an Improved Dialysate***Matthew Fahrenkopf - Carnegie Mellon Univ*

**8:00am - 5:00pm**  
**RENAL POSTER SESSION 1**

Room: Exhibit Area - Key Ballroom 6 - Level 2

**Posters Available All Day**

**Board #**

- 59 **Clinical Evaluation of a Vascular Access System for Hemodialysis**  
*\*\*Abram Janis, MS - IncuMed Research Organization*
- 60 **Comparison of Clearance and Fluid Distributions of Newly Designed High Flux Hemodialyzers**  
*\*\*Zhongping Huang, PhD - Widener Univ*
- 61 **Patient Satisfaction with Renal Replacement Therapy, Education and Training**  
*Greg Abbott, MBA - Baxter Healthcare*
- 62 **Assessment of Change in Hydration Status in Hemodialysis Patients Using Bioimpedance Techniques**  
*Samer Abbas, PhD - Renal Research Inst*
- 63 **A Selective Cytopheretic Inhibitory Device (SCD) Accelerates Renal Recovery and Improves Mortality in ICU Patients with AKI and MOF in an Exploratory Clinical Study**  
*\*\*David Humes, MD - Univ of Michigan*
- 64 **Effect of Selective Renal Artery Perfusion with Extracorporeal Circuit on Renal Function under Acute Cardio-Renal Syndrome**  
*Shigeru Hanada, MD - Nat'l Cardiovascular Research Inst*
- 65 **Optimized Biocompatibility and Performance of a New Steam Sterilized Plasma Separation Membrane**  
*Markus Storr - Gambro Dialysatoren GmbH*
- 66 **Mechanism of Action of a Selective Cytopheretic Device to Ameliorate Multiorgan Dysfunction in Septic Shock**  
*\*\*Juyoung Jung, DVM, PhD - Univ of Michigan*
- 67 **Does a Reduced Sodium Dietary Intake Impact Blood Pressure and Total Body Water?**  
*Natalia Rakova, MD - Russian Academy of Sciences*
- 68 **Initial In Vivo Evaluation of a Hemodialyzing System for Transportable Treatment**  
*\*\*George Pantalos, PhD - Univ of Louisville*
- 69 **Insulinogenic Index in Non-Diabetics during Hemodialysis**  
*\*\*Daniel Schneditz, PhD - Medical Univ of Graz*
- 70 **Cryoreactive Albumin Removal Apheresis (CRARA) Therapy for the Prevention of Diabetic Complication**  
*\*\*Hiroshi Miyamoto, PhD - Baylor College of Medicine*
- 71 **Dialyzer End-Caps Revisited**  
*\*\*Alexandra Peyser, BS - Columbia Univ*

72 **Development of the 2nd Generation Granulocytapheresis Column**  
*Junji Takaba - Baylor College of Medicine*

**8:00am - 8:30am**

**RAPID FIRE FLASH PRESENTATIONS**

Five Abstracts have been selected for presentation in the New Rapid Fire format. Authors will have five minutes to present up to three slides. Please direct all questions to speakers at their poster board in the Exhibit Hall.

**Clinical Evaluation of a Vascular Access System for Hemodialysis**

*\*\*Abram Janis, MS - IncuMed Research Organization*

**Modeling and Numerical Analysis of Platelet Activation, Adhesion and Aggregation in Artificial Organs**

*\*\*Jaewook Nam, PhD - Rice Univ*

**Impact of a Continuous Flow Left Ventricular Assist Device on Right Ventricular Function**

*\*\*Jeffrey Morgan, MD - Henry Ford Hospital*

**Evaluation of Oxygen Exchange in Total Liquid Ventilation with a Bubble Gas Exchanger**

*\*\*Philippe Micheau, PhD - Univ de Sherbrooke*

**Development of a 2nd Gen. Data Acquisition Platform for the Pediaflow VAD**

*\*\*Salim Olia, BS - Univ of Pittsburgh*

**8:30am - 12:15pm**

**GENERAL SESSION 2 - FRIDAY**

**"Disruptive Technologies: Developing the Next Breakthrough"**

Room: Key Ballroom 8, 11, 12 - Level 2

*Chairmen: William Wagner, PhD & William Weiss, PhD*

**8:30am - 9:00am**

**KEYNOTE ADDRESS**

**Enhancing Innovation and Its Commercial Application in an Academic Medical Center**

*Christopher Coburn, PhD - Executive Director Innovations, Cleveland Clinic*

**9:00am - 9:30am**

**The Safe Surgeon and Surgical Innovation**

*\*\*William Holman, MD - Prof CT Surgery, Univ of Alabama at Birmingham - President ASAIO*



**9:30am - 10:00am**

**ECMO as Organ Resuscitation for Donors after Cardiac Death**

*Constantino Fondevila, MD, PhD - Assoc Prof Surgery, Univ of Barcelona*

**10:00am - 10:45am**

**VISIT EXHIBITS & POSTERS - ENJOY REFRESHMENTS**

Exhibit Area: Key Ballroom 6 - Level 2

10:45am - 11:15am

**ASAIO HASTINGS LECTURE****Artificial Lung - A New Inspiration**

\*\*Joseph Zwischenberger, MD -  
Chair Surgery, Univ of Kentucky



11:15am - 11:45am

**50th Scribner Anniversary - Dialyzing His First Patients  
with Chronic Renal Failure Using the Scribner -  
Quinton Shunt**

\*\*Christopher Blagg, MD - Executive Director, Northwest Kidney Centers

11:45am - 12:15pm

**BARNEY CLARK AWARD PRESENTATION**

Presented by: \*\*Don Olsen, DVM - President, Utah  
Artificial Heart Inst



Presented to:

\*\*Eli Friedman, MD - Prof Medicine, Downstate  
Medical Center

**ASAIO WILLEM J KOLFF -****DON B OLSEN AWARD PRESENTATION**

Presented by: \*\*Don Olsen, DVM to:

\*\*Nobumasa Katagiri, ME - Nat'l Cardiovascular Ctr Research Inst

12:15pm - 1:15pm

**WORKING LUNCHEON - Admission by ticket**

Room: Tubman A, B - Level 3

**Physicians Present - Training & Education with  
Devices / Therapy**

\*\*Mark Slaughter, MD - Prof & Chief Thoracic & CV Surg, Univ of  
Louisville

1:30pm - 5:00pm

**SPECIAL INTERACTIVE EXHIBIT:**

**Demonstrating the Preparation and Management During  
Transport of a Critically Ill Patient Who is Being Sent to  
a Tertiary Care Facility for a Highly Technical Procedure.  
In addition, Attendees Can See How Well They Perform  
Resuscitation-Related Procedures**

Room: Exhibit Area - Key Ballroom 6 - Level 2

**Integration of Medical Education and Technology,  
Recent Innovations**

Richard Aghababian, MD - Assoc Dean CME, Univ of Massachusetts  
Medical School

\*\*James DuCanto, MD - Asst Clinical Prof Liver Transplant  
Anesthesia, Aurora St Luke's Medical Ctr

Jorge Yarzebski, NREMT-P - Emergency Med Prog Coordinator, Univ of  
Massachusetts

**A. Preparation and Management during Transport of a  
Critically Ill Patient**

**B. Demonstration of Resuscitation-Related Procedures**

1:30pm - 4:15pm

**PULMONARY TRACK**

1:30pm - 3:00pm

**PULMONARY LECTURE & SLIDE SESSION 3**

Room: Key Ballroom 7 - Level 2

Moderators: William Federspiel, PhD &amp; Guruprasad Giridharan, PhD

1:30pm - 2:00pm

**Neurally Adjusted Ventilatory Assist**

Christer Sinderby, BSc - Staff Scientist, St Michael's Hospital

**2:00pm Assessment of the Gas Exchange Performance of  
the TLV System with a Slanted Operating Table**

Ryo Yokoi, BS - Tokyo Denki Univ

**2:15pm Venovenous Peripheral Extracorporeal  
Membrane Oxygenator (ECMO) for Acute  
Respiratory Failure Due to Influenza A (H1N1)  
Virus Infection: Early Satisfactory Results in  
Our Single-Centre Experience**

Pasquale Totaro, MD, PhD - IRCCS Foundation S Matteo

**2:30pm 30 Day In-Vivo Performance of an Integrated  
Pediatric Pump-Lung for  
Cardiac/Cardiopulmonary Support**

Tao Zhang, PhD - Univ of Maryland

**2:45pm In Vitro Testing Results of the Hemolung  
Respiratory Assist System**

\*\*Paul Bieniek - Alung Technologies Inc

3:00pm - 3:45pm

**VISIT EXHIBITS & POSTERS - ENJOY REFRESHMENTS**

Exhibit Area: Key Ballroom 6 - Level 2

3:45pm - 4:45pm

**SPECIAL SESSION - IFAO - ESAO**

Room: Key Ballroom 7 - Level 2

Moderator: Stephen Ash, MD

3:45pm - 4:15pm

**Regenerative Medicine and ESAO Conference 2011**

Rui Reis, PhD - Assoc Prof, Univ of Minho

4:15pm - 4:45pm

**Artificial Organs and IFAO**

\*\*Jörg Vienken, PhD - President IFAO

1:30pm - 5:30pm

**CARDIAC TRACK**

1:30pm - 3:00pm

**CARDIAC SLIDE SESSION 3****Continuous Flow LVAD - Clinical Implication**

Room: Key Ballroom 9 - Level 2

Moderators: Geetha Bhat, MD, PhD &amp; Scott Corbett, PhD

**1:30pm Lack of Ischemic Strokes in Patients Implanted with the HeartMate II LVAD: A Single Center Experience***Paul Nolan, PhD - Univ of Arizona***1:45pm Does Coronary Flow Increase in cf-LVAD Support?***\*\*Egemen Tuzun, MD - Texas Heart Inst***2:00pm How Effective Are Continuous Flow Left Ventricular Assist Devices in Lowering High Pulmonary Artery Pressures in Heart Transplant Candidates?***\*\*Geetha Bhat, MD, PhD - Advocate Christ Medical Ctr***2:15pm Efficacy of Continuous-Flow LVADs in End-Stage Heart Failure Patients with Severe Pulmonary Hypertension***Forum Kamdar, MD - Univ of Minnesota***2:30pm Tricuspid Valve Replacement Coincident with HeartMate II LVAD Insertion***\*\*Walter Dembitsky, MD - Sharp Memorial Hospital***2:45pm Low Operative Mortality in Patients Supported with a Left Ventricular Assist Device Requiring Pump Exchange***\*\*Antone Tatoes, MD - Advocate Christ Medical Ctr*

1:30pm - 2:45pm

**CARDIAC INVITED SPEAKERS 3**

Room: Key Ballroom 10 - Level 2

Moderators: George Pantalos, PhD &amp; Todd Massey, MD

1:30pm - 1:50pm

**Dual Continuous Flow: Total Artificial Heart with Induced Pulsatility***\*\*O Howard Frazier, MD - Chief Center for Cardiac Support, Texas Heart Inst*

1:50pm - 2:15pm

**Remote Monitoring Session***Gregory Ewald, MD - Assoc Prof Medicine, Washington Univ*

2:15pm - 2:45pm

**Human Factors and When to Evaluate the Device***\*\*Sonna Patel-Raman, PhD - Biomedical Engineer, FDA - FDA Perspective**\*\*Jeffrey LaRose, MSME - Exec VP, CSO, HeartWare Inc - Industry Perspective*

3:00pm - 3:45pm

**VISIT EXHIBITS & POSTERS - ENJOY REFRESHMENTS**

Exhibit Area: Key Ballroom 6 - Level 2

3:45pm - 5:30pm

**CARDIAC SLIDE SESSION 4****VADs - Experimental**

Room: Key Ballroom 9 - Level 2

Moderators: Steven Conrad, MD, PhD &amp; John Pristas, MBA

3:45pm - 4:00pm

**Hypothermia***Marie Mullen, MD - Assoc Prof Emergency Medicine, Univ of Massachusetts***4:00pm Opening Time and Average Load on the Aortic Valve during cf-LVAD Support***\*\*Egemen Tuzun, MD - Texas Heart Inst***4:15pm A New Technology for Preventing VAD Drive Line Infection Using Plasma-Based Ion Implantation***\*\*Yoichi Sugita, MD - Baylor College of Medicine***4:30pm Acute Animal Experiments of a Magnetically Levitated Axial Flow VAD***\*\*Don Olsen, DVM - Utah Artificial Heart Inst***4:45pm 1st US Implants of the Levacor VAD***\*\*Douglas Horstmannshof, MD - Integris Advanced Cardiac Care***5:00pm Optimizing Cardiovascular Interaction with Ventricular Assist Devices***Kai Chun Wong - Helmholtz Inst***5:15pm Hemorheological Evaluation of the 3rd Gen. Pediaflow VAD Performance***\*\*Salim Olia, BS - Univ of Pittsburgh*

8:00am - 5:00pm

**CARDIAC POSTER SESSION 2**

Room: Exhibit Area - Key Ballroom 6 - Level 2

**Posters Available All Day****Board #****73 Miniature Cardiopulmonary Bypass System for Mice***\*\*Akira Kawaguchi, MD, PhD - Tokai Univ***74 Development of a Novel Inflow Cannula for Less Invasive and Antithrombogenic LVAD Support***\*\*Yoshiaki Takewa, MD - Nat'l Cardiovascular Research Ctr***75 Modeling and Numerical Analysis of Platelet Activation, Adhesion and Aggregation in Artificial Organs***\*\*Jaewook Nam, PhD - Rice Univ*

- 76 **Development of Native Heart Load Control System with Continuous Flow Ventricular Assist Device for Bridge to Recovery of Failing Heart**  
\*\*Takashi Nishimura, MD, PhD - Univ of Tokyo  
ASAIO Y Nosé International Fellowship Recipient
- 77 **Impact of a Continuous Flow Left Ventricular Assist Device on Right Ventricular Function**  
\*\*Jeffrey Morgan, MD - Henry Ford Hospital
- 78 **Rescue Therapy with TandemHeart™ in Patients with Severe Post-Heart Transplant Rejection and Cardiogenic Shock**  
Mehmet Akay - Texas Heart Inst
- 79 **Influence of the Aortic Root Compliance on Hemolysis of Heart Valve Prostheses: An In Vitro Study**  
Marcus Hormes, Dipl Ing - RWTH Aachen Univ
- 80 **Time-Dependent Differences in the Cause of Death after Left Ventricular Assist Device Implantation**  
\*\*Ian Ledford - Intermountain Medical Ctr
- 81 **LEVACOR™ VAD - Preclinical Qualification for US Study**  
\*\*Phillip Miller, MS - WorldHeart Corporation
- 82 **Preclinical Biocompatibility Assessment of Pediatric VADS in the Ovine Model**  
\*\*Carl Johnson, BS - Univ of Pittsburgh
- 83 **Use of External Pressure Application To Augment Fontan Hemodynamics**  
\*\*Sonya Bhavsar, BS - Virginia Commonwealth Univ
- 84 **In Vitro and Ex Vivo Development of a Novel Bioactive Ventricular Assist Device Conduit**  
Matthew Phaneuf, BS - BioSurfaces Inc
- 85 **Biventricular Support Using Implantable Continuous-Flow Ventricular Assist Devices**  
Shunsuke Saito, MD - Osaka Univ
- 86 **Speed Modulation of the Continuous-Flow Total Artificial Heart To Simulate a Physiologic Arterial Pressure Waveform**  
Akira Shiose, MD, PhD - Cleveland Clinic
- 87 **Accidental Intraabdominal Tunneling of Driveline in Patient Supported for over 4 Years with DuraHeart Left Ventricular Assist Device (LVAD) Detected during Pump Exchange**  
\*\*Alexander Stepanenko, MD - Deutsches Herzzentrum Berlin
- 88 **Arterial Pressure Correlates with Cardiac Output during Biventricular Pacing Optimization**  
Barry Breaux - Columbia Univ
- 89 **A Dynamic Study on the Hemolytic Effect of Negative Pressure on Blood**  
\*\*Tim Kaufmann, Dipl Phys - RWTH Aachen Univ
- 90 **Development of a Wearable Pneumatic Total Artificial Heart System with an Ultra Compact Drive Unit**  
Hirohito Sumikura, PhD - Nat'l Cardiovascular Research Ctr
- 91 **Biochemical and Functional Changes in Red Blood Cells and Platelets Induced by Iodinated Radiographic Contrast Media (ICM)**  
\*\*Jan-Stanley Simoni, DVM, PhD - Texas Tech Univ
- 92 **A Design Tool for Miniaturized RBP Impeller Suspension Using Fluid Film Bearings**  
Daniel Timms, Heimholtz Inst
- 93 **Percutaneous Cavopulmonary Assist System for Failing Fontan Circulation**  
\*\*Dongfang Wang, MD, PhD - Univ of Kentucky
- 94 **Peripheral Approach to the Impella 5.0LP**  
Joshua Baker, MD - Massachusetts General Hospital
- 95 **Development of an Ultra-Compact Pneumatic Pressure Generation System To Drive a Pneumatic Blood Pump for VAD and TAH**  
\*\*Akihiko Homma, PhD - Nat'l Cardiovascular Research Ctr
- 96 **Development of a Rapid, Safe, Fiberoptic Guided, Single-Incision Cricothyrotomy Method Using a Large Ovine Model: A Pilot Study**  
\*\*James DuCanto, MD - Aurora St Luke's Medical Ctr
- 97 **Simulation of the Flow in the Cardiovascular System for Cardiopulmonary Bypass and Cardiac Assist Using a Two-Way Fluid-Structure-Interaction Model**  
\*\*Tim Kaufmann, Dipl Phys - RWTH Aachen Univ
- 98 **Computational Modeling of Nitinol Stents for Percutaneous Heart Valves**  
\*\*Javid Moraveji - Univ of South Carolina
- 99 **Simulation of a Pneumatic Driver for a Pediatric Ventricular Assist Device**  
\*\*William Weiss, PhD - Penn State Univ
- 100 **Ultrafiltration Techniques in a Large-Animal Model of Cardiac Replacement**  
\*\*Jeff Conger, BS, RRT - Texas Heart Inst
- 101 **Investigation of Effects of Passive Filling Left Ventricular Assist Device on Native Failing Heart in Mock Circulation**  
Yu Funabashi - Tokyo Denki Univ
- 102 **In Vivo Calcification of Polyurethane Trileaflet Heart Valves**  
\*\*Caitlyn Bosecker, SMME - Abiomed Inc

### 1:30pm - 5:00pm BIOENGINEERING TRACK

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#### 1:30pm - 3:00pm BIOENGINEERING SLIDE SESSION 3

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##### Ventricular Assist Device Bioengineering

Room: Holiday Ballroom 1 - Level 2

Moderators: Marina Kameneva, PhD & Timothy Maul, PhD

- 1:30pm Predictors of Late Exit Site Infections Associated with Ventricular Assist Device (VAD) Therapy**  
*Pramond Bonde, MD - Univ of Pittsburgh*
- 1:45pm Early Unloading of Infarcted Hearts Prevents Cardiac Remodeling and Preserves Calcium Homeostasis**  
*Giacomo Bianchi, MD - Univ of Maryland*
- 2:00pm Impella LVAD Effectively Decreases Strain in the Left Ventricle after Myocardial Infarction**  
*\*\*Zhongjun Wu, PhD - Univ of Maryland*
- 2:15pm Optimal Identification of Need for Right Ventricular Support Using Cost-Sensitive Decision Tree**  
*\*\*Yajuan Wang, MS - Carnegie Mellon Univ*  
ASAIO Young Innovator First Time Author  
Fellowship Recipient
- 2:30pm Biodegradable and Thermo-responsive Hydrogels Designed for Injection Therapy To Improve Function in Ischemic Cardiomyopathy**  
*\*\*William Wagner, PhD - Univ of Pittsburgh*
- 2:45pm Sensitivity of Hemodynamics and Wall Stress to the Speed of Continuous Flow Pump**  
*\*\*Choon-Sik Jhun, PhD - Penn State Univ*

#### 1:30pm - 3:00pm BIOENGINEERING INVITED SPEAKERS 3

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Room: Holiday Ballroom 2 - Level 2

Moderators: Christopher Siedlecki, PhD & Luke Herbertson, PhD

- 1:30pm - 2:00pm Microtechnology - Devices**  
*Robert Keynton, PhD - Prof & Chair Bioeng, Univ of Louisville*
- 2:00pm - 2:30pm Surface Coatings – Interface Between Biological Tissue and Devices**  
*Michael Danilich, PhD - Dir Biomedical Technologies, Luna Innovations Inc*

#### 3:00pm - 3:45pm

#### VISIT EXHIBITS & POSTERS - ENJOY REFRESHMENTS

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Exhibit Area: Key Ballroom 6 - Level 2

### 3:45pm - 5:15pm BIOENGINEERING SLIDE SESSION 4

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#### Artificial Organ Development

Room: Holiday Ballroom 1 - Level 2

Moderators: Amy Throckmorton, PhD & Scott Merz, PhD

- 3:45pm Development of a Cell Pouch To Form an Artificial Pancreas**  
*David White, PhD - Univ of Western Ontario*
- 4:00pm Bioengineered Skin Allografts - A New Method To Prevent Humoral Response**  
*Lauren Brasile, PhD - Breonics*
- 4:15pm Fibronectin Influences Staphylococcus Epidemidis RP62A Adhesion and Interaction with Platelets on Polyurethane Biomaterial Surfaces**  
*\*\*Christopher Siedlecki, PhD - Penn State Univ*
- 4:30pm Evaluation of Small Intestine Submucosa Vascular Grafts for Small-Diameter Veins Replacement: Methodology and Early Results in an Animal Model**  
*Lina Maria Quijano - Univ of Los Andes*
- 4:45pm Platelet Inhibition by Antibiotics and Implications in Circulatory Support Device Development**  
*\*\*Denise Medvid - Penn State Univ*
- 5:00pm Nitric Oxide (NO) Generating Silicone Hollow Fibers**  
*Kagya Amoako, MS - Univ of Michigan*

#### 3:45pm - 4:45pm BIOENGINEERING INVITED SPEAKERS 4

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Room: Holiday Ballroom 2 - Level 2

Moderators: John Marks, PhD & Connie Hall, PhD

- 3:45pm - 4:15pm Artificial Bladder - Neo-Organs**  
*Tamer Aboushwareb, MD, PhD - Research Instructor, Wake Forest Univ*
- 4:15pm - 4:45pm Creating a New Cardiovascular Bioengineering Institute in Turkey**  
*\*\*Kamuran Kadipasaoglu, PhD - Instructor Mech Eng, Bahcesehir Univ*  
*\*\*Taha Elibol, BS - Research Assistant, Bahcesehir Univ*

8:00am - 5:00pm

**BIOENGINEERING POSTER SESSION 2****Pediatric & Adult Blood Pump Development**

Posters Available All Day

Room: Exhibit Area - Key Ballroom 6 - Level 2

**Board #**

- 103 In-Vitro Hemodynamic Evaluation of Ventricular Suction Conditions of the Evaheart Assist Pump**  
*\*\*Antonio Ferreira, PhD - Carnegie Mellon Univ*
- 104 Differences in Hydrodynamic Performance and Flow Estimation between Axial and Centrifugal LVAD**  
*\*\*Guruprasad Giridharan, PhD - Univ of Louisville*
- 105 Introductory Tests to In Vivo Evaluation: Magnetic Coupling Influence in Motor Controller**  
*Eduardo Bock, MSc - IDPC / FEM*
- 106 Auxiliary Artificial Heart Endurance Test with a Mock Circulation Loop System**  
*Aron Andrade, MD - Inst Dante Pazzanese of Cardiology*
- 107 Modeling and Diagnostics of Total Artificial Heart**  
*Taufik Wassar - Univ of Houston*
- 108 Surveillance and Management of HeartMate II Percutaneous Drivelines**  
*\*\*Trevor Snyder, PhD - Integris Baptist Medical Ctr*
- 109 Evaluation of Oxygen Exchange in Total Liquid Ventilation with a Bubble Gas Exchanger**  
*\*\*Philippe Micheau, PhD - Univ de Sherbrooke*
- 110 Aortic Outlet Extension in the 12cc Penn State Pediatric Ventricular Assist Device**  
*\*\*Michael Fickes, BS - Penn State Univ*
- 111 A Methodology To Study the Hemodynamics in Patients with Bi-Directional Glenn Shunt**  
*Carolina Vallecilla, MSc - Univ of Los Andes*
- 112 A Fontan-Type Mock Circuit with Heterometric Autoregulation**  
*\*\*Taha Elibol, BS - Bahcesehir Univ*
- 113 Computational Assessment of Twisted Cage Filaments for an Intravascular Axial Flow Blood Pump for Cavopulmonary Assistance**  
*\*\*Amy Throckmorton, PhD - Virginia Commonwealth Univ*
- 114 A Flow Analysis of a Polymeric Trileaflet Heart Valve**  
*\*\*Dylan Frank, BS - Penn State Univ*
- 115 The Scaling Effects in Comparing Pediatric and Adult Mechanical Heart Valves**  
*\*\*Stephen Topper - Penn State Univ*

- 116 Functionalization of Polymeric Membranes for Tissue Engineering of Heart Valves**  
*\*\*Ismar Cestari, MD, PhD - Univ of Sao Paulo*
- 117 Development of a Novel Material Testing Method for Simulation of Biomedical Materials**  
*\*\*Tim Kaufmann, Dipl Phys - RWTH Aachen Univ*
- 118 Development of a 2nd Gen. Data Acquisition Platform for the Pediaflow VAD**  
*\*\*Salim Olia, BS - Univ of Pittsburgh*

1:30pm - 4:15pm

**NEURAL SESSION**

Room: Carroll A, B - Level 3

*Moderators: Nicholas Hatsopoulos, PhD & Sonna Patel-Raman, PhD*

1:30pm - 2:30pm

**Neuromorphic Engineering - Artificial Neural Systems, Such As Vision Systems, Head-Eye Systems, Auditory Processors & Autonomous Robots***Timothy Horiuchi, PhD - Assoc Prof Computer Eng, Univ of Maryland**John Pezaris, PhD - Asst Prof Neuroscience, Massachusetts General Hospital**Phil Troyk, PhD - Assoc Prof Bioeng, IIT*

2:30pm - 3:00pm

**Advances In Artificial Hearing***Christof Stieger, PhD - Asst Prof ENT Head & Neck Surg, Univ of Bern*

3:00pm - 3:45pm

**VISIT EXHIBITS & POSTERS - ENJOY REFRESHMENTS**

Exhibit Area: Key Ballroom 6 - Level 2

3:45pm - 4:15pm

**Artificial Eyes***Robert Greenberg, MD, PhD - President & CEO, Second Sight Medical Products Inc*

1:30pm - 4:15pm

**PEDIATRIC SESSION**

Room: Paca A, B - Level 3

*Moderators: Brian Duncan, MD, MBA & Timothy Baldwin, PhD*

1:30pm - 1:45pm

**An Overview of the NHLBI's PumpKIN Program***\*\*Timothy Baldwin, PhD - Prog Dir NHLBI, NIH*

1:45pm - 3:00pm

**SYMPOSIUM****What Are the Best Methods for Anticoagulating Pediatric Patients with MCS Devices?***Christopher Almond, MD - Cardiologist, Children's Hosp Boston**Patricia Massicotte, MD - Dir Vascular Patency, Univ of Alberta**Holger Buchholz, MD - VAD Specialist, Univ of Alberta**\*\*Peter Wearden, MD, PhD - Asst Prof Pediatrics CT Surg, Children's Hospital of Pittsburgh*

3:00pm - 3:45pm

### VISIT EXHIBITS & POSTERS - ENJOY REFRESHMENTS

Exhibit Area: Key Ballroom 6 - Level 2

3:45pm - 4:15pm

### Challenges In Pediatric Cardiac Assist Device Development & Use

*\*\*James Antaki, PhD - Prof Biomed Eng, Carnegie Mellon Univ*

5:30pm - 6:00pm

### ASAI0 MEMBER BUSINESS MEETING

Room: Carroll A, B - Level 3

## SATURDAY, MAY 29

8:00am - 8:30am

### RAPID FIRE FLASH PRESENTATIONS

#### Complicated Endocarditis Requiring Temporary Circulatory Support after Surgical Correction - Incidence and Outcome

*Christian Binner, MD - Heart Center Leipzig*

#### Pre-Clinical Assessment of the 3rd PediaFlow™ Pediatric Ventricular Assist Device Prototype

*\*\*Timothy Maul, PhD - Univ of Pittsburgh*

#### Delivering Physiologic Pulse Pressures with Continuous Flow Ventricular Assist Devices

*\*\*Mickey Ising - Univ of Louisville*

ASAI0 Young Innovator First Time Author Fellowship Recipient

#### Assessing Shear-Induced Platelet Activation: In Vitro Comparison between Human and Bovine Blood

*Qijin Lu, PhD - FDA*

#### Coating Polymers with a Human Extracellular Matrix (hECM) Significantly Improves Implant Biocompatibility

*Emmett Pinney - Histogen Inc*

8:30am - 12:00pm

### GENERAL SESSION 3 - SATURDAY

Room: Key Ballroom 8, 11, 12 - Level 2

*Chairmen: William Wagner, PhD & David Humes, MD*

#### "Roadmap to Innovation: From Concept to Commercialization"

8:30am - 9:00am

#### Novel Tools and Techniques to Facilitate Off-Pump LVAD Implantation

*\*\*William Cohn, MD - CV Surgeon, Texas Heart Institute*

9:00am - 10:30am

### NEW VENTURE FORUM

#### Bridging Innovative Medical Concepts and Technologies to a Commercial Reality

Panel:

*\*\*Brian Duncan, MD, MBA*

*\*\*Eric Chen, MS*

*\*\*Thomas Meese, BSE*

*Tracy Warren*

*Edward Berger, PhD*

#### Dynamitral: The Only Dynamic Mitral Valve Bioprosthesis

*\*\*Arash Kheradvar, MD, PhD - Asst Prof Mech Eng, Univ of South Carolina*

#### Occlude Solutions

*Carolina Vallecilla, MSc - Univ of Los Andes*

#### Bloodox

*Camila Castro, MSc - Univ de Los Andes*

10:30am - 11:00am

### VISIT EXHIBITS & POSTERS - ENJOY REFRESHMENTS

Exhibit Area: Key Ballroom 6 - Level 2

11:00am - 11:30am

#### The Sorcerer's Apprentice - An Inventor's Journey

*\*\*Richard Wampler, MD - Consultant*

11:30am - 12:00pm

### DEBATE

#### Ethics of Organ Resuscitation with Donors after Cardiac Death

*\*\*Joseph Zwischenberger, MD - Chair Surgery, Univ of Kentucky*

*\*\*Jeffrey Punch, MD - Chief Transplantation, Univ of Michigan Medical Center*

1:00pm - 3:00pm

### COMMERCIALIZATION SESSION

Room: Key Ballroom 10 - Level 2

*Moderator: Tracy Warren*

1:00pm - 2:30pm

### SYMPOSIUM

#### Commercializing Medical Devices

#### Panel Discussion - The Basics of Commercialization

#### Intellectual Property Primer

*Bonnie McLeod, PhD, JD - Partner / Attorney, Cooley Godward Kronish LLP*

#### The Medical Device Development Pathway: From Concept to Reimbursement in Seven Easy Steps

*\*\*Brian Duncan, MD, MBA - Venture Partner - Arboretum Ventures*

#### Equity Primer - The Play Book of VC's

*Tracy Warren - General Partner, Battelle Ventures LP*

2:30pm - 2:45pm

**Small Business: Trials and Tribulations***Doug Godshall - President & CEO, HeartWare Inc*

2:45pm - 3:00pm

**How to Reach High Standards to Sell Your Laboratory? A win-win Situation for Industry and Academia!***\*\*Egemen Tuzun, MD - Asst Dir CV Surg, Texas Heart Inst*

1:00pm - 2:30pm

**CARDIAC TRACK**

1:00pm - 2:30pm

**CARDIAC SLIDE SESSION 5****VADs**

Room: Key Ballroom 9 - Level 2

*Moderators: Wayne Richenbacher, MD & Mark Macedo, BSN***1:00pm Characterization of Reasons for Turning down Referrals for Left Ventricular Assist Devices (LVADs)***\*\*Ian Ledford - Intermountain Medical Ctr***1:15pm Anatomic Fit of a Percutaneous VAD for Treatment of Acute Right Heart Failure***\*\*Scott Corbett, PhD - Abiomed Inc***1:30pm Ischemic Bowel Disease in Patients on Mechanical Assist Devices***Monica Gustafson, MD - Univ of Arizona***1:45pm An Innovative, Miniaturized, Continuous-Flow Total Artificial Heart: Device Design and Preliminary Studies***\*\*Mark Slaughter, MD - Univ of Louisville***2:00pm Anticoagulation Strategies for High Risk HeartMate II Patients***\*\*Walter Dembitsky, MD - Sharp Memorial Hospital***2:15pm Arteriovenous Malformation and Gastrointestinal Bleeding in Patients with the HeartMate II Left Ventricular Assist Device***Zumrut Demirozu - Texas Heart Inst*

8:00am - 12:00pm

**CARDIAC POSTER SESSION 3**

Room: Exhibit Area - Key Ballroom 6 - Level 2

**Posters Available Until 12 Noon****Board #****119 A Single-Pass Orifice System To Assess Red Blood Cell Fragility***\*\*Luke Herbertson, PhD - FDA***120 Complicated Endocarditis Requiring Temporary Circulatory Support after Surgical Correction - Incidence and Outcome***Christian Binner, MD - Heart Center Leipzig***121 Pre-Clinical Assessment of the 3rd PediaFlow™ Pediatric Ventricular Assist Device Prototype***\*\*Timothy Maul, PhD - Univ of Pittsburgh***122 A New Failing Fontan Sheep Model***\*\*Dongfang Wang, MD, PhD - Univ of Kentucky***123 Left Ventricular Reverse Remodeling with the HeartMate II LVAD as Measured by Left Ventricular End Diastolic Dimensions and Severity of Mitral Regurgitation***\*\*Jeffrey Morgan, MD - Henry Ford Hospital***124 Quantification of Ambulatory Power Source for Ventricular Assist System***Craig Carder, MSEE - HeartWare Inc***125 In-Vitro Optimization of Inflation/Deflation Control for Para-Aortic Counter-Pulsatile Circulation Support***Ming-Yao Chan, PhD - Nat'l Cheng Kung Univ***126 A New Axial Blood Designed for Adults in Fuwai Hospital***\*\*Yan Zhang, MD - Fu Wai Hospital***127 Heart Rate Variability in Ventricular Assist Device Animals in View of the Mathematical Models***\*\*Eiki Akagawa, PhD - Nat'l Cardiovascular Research Ctr***128 Regional Cerebral Oxygen Saturation Monitoring during Unilateral and Bilateral Carotid Perfusion for Cerebral Protection in Aortic Surgery***Pasquale Totaro, MD, PhD - IRCCS Foundation S Matteo***129 Acquisition of Accurate Pressure-Volume Loops of Left Ventricle in Mock Circulation***Yoshihiro Miyazawa - Tokyo Denki Univ***130 Experimental Evaluation of the Incor Pediatric Ventricular Assist Device***\*\*Idagene Cestari, PhD - Heart Inst, InCor***131 Clinical Experience with Terumo-Triplex in Total Arch Replacement-Analysis of Postoperative Serum Leakage, Graft Dilatation Ratio and Inflammatory Response***\*\*Toshihiro Ohata, MD, PhD - KKR Sapporo Medical Ctr***132 Hydraulic Ventricular Work Reduction with the Micromed cf-LVAD, an Ex-Vivo Study***Kim Pennings, BSc - Eindhoven Univ of Technology***133 Interlaboratory Measurements of Flow Parameters for Comparison to CFD Simulations of FDA's Nozzle Model***Prasanna Hariharan - FDA*

- 134 **Modeling and Simulation of Phasic Coronary Flow under Counter-Pulsatile Circulation Support**  
*Chun-Hao Hung - Aeronautics & Astronautics*
- 135 **Computational Fluid Dynamic Analysis of Aerosol Distribution in the Human Tracheo-Bronchial Tree**  
*\*\*Paola Bagnoli, PhD - Politecnico di Milano*
- 136 **A Computational Approach To Assess the Effect of Dynamic Annulus on Mitral's Leaflet Stress Distribution**  
*\*\*Ahmad Falahatpisheh, MSc - Univ of South Carolina*
- 137 **Investigation of Steady Flow through a Realistic Model of the Thoracic Human Aorta Using 3D Stereo-PIV and CFD-Simulation**  
*\*\*Tim Kaufmann, Dipl Phys - RWTH Aachen Univ*
- 138 **New Computational Method in Tensor-Based Hemolysis Analysis for Artificial Heart Pump**  
*\*\*Jaewook Nam, PhD - Rice Univ*
- 139 **Flow Rate Estimation for a Pneumatic Artificial Heart Using the Driveline Air Mass Flow**  
*\*\*Kentarō Ohnuma, PhD - Nat'l Cardiovascular Research Ctr*
- 140 **Hemodynamic Analysis of a Novel Spherical Positive Displacement Rotary Blood Pump**  
*\*\*Greg Burgreen, PhD - Optimal LLC*
- 141 **A Novel Ex Vivo Perfusion System for Analysis of High Blood Pressure in Human Vessels**  
*Ulrich Schreiber, PhD - German Heart Ctr Munich*
- 142 **Influence of Hemocor HPH-Hemoconcentrator on ATP Release from Human Erythrocytes**  
*\*\*Jan-Stanley Simoni, DVM, PhD - Texas Tech Univ*
- 143 **Bridge to Recovery with a Thoratec Biventricular Assist Device for Postpartum Cardiomyopathy: A Case Report**  
*\*\*Hannah Zimmerman, MD - Univ of Arizona*
- 144 **Evaluation of Less Invasive Treatment for Aortic Aneurysm with Ischemic Heart Disease by Catheter Intervention**  
*Shigeki Ito, MD, PhD - Nishitokyo Central General Hospital*
- 145 **Nitinol Based Artificial Muscle Independent Biventricular External Cardiac Assist Device: Bench Test Results**  
*Alexandre Michalis, MD - CHUV*
- 146 **PIV and Wall-PIV Study of a Valveless Counterpulsation Heart Assist Device**  
*\*\*Leonid Goubergrits, PhD - Charite Universitaetsmedizin Berlin*

- 147 **Rare Cardiac Pathology: Unilateral Absence of Pulmonary Artery with Tetralogy of Fallot**  
*Tijen Alkan-Bozkaya, MD - Istanbul Bilim Univ*
- 148 **Tacrolimus Once-Daily Formulation in the De-Novo Prophylaxis of Transplant Rejection in Heart Allograft Recipients**  
*Akhim Koch - Uniklinik Heidelberg*

1:00pm - 2:30pm

### PULMONARY TRACK

1:30pm - 2:30pm

### PULMONARY SLIDE SESSION 4

Room: Key Ballroom 7 - Level 2

Moderators: Richard Chan, CCP & Zhongjun Wu, PhD

1:00pm **Platelet Response to Extracorporeal Respiratory Support**

*\*\*Xiaoqin Zhou, MD - Univ of Kentucky*

1:15pm **Combined Pulmonary and Renal Support in One Extracorporeal Device**

*\*\*Bettina Wiegmann, MD - Hannover Medical School*

1:30pm **Evaluation of Platelet Activation in Ovines Implanted with Integrated Pump-Lung Using Soluble P-Selectin**

*Kang Zhou, MD - Univ of Maryland*

1:45pm **Pulsatile Versus Non Pulsatile Blood Flow in Blood Oxygenators: A CFD Study**

*Marcus Hormes - RWTH Aachen Univ*

2:00pm **CFD Analysis of a Percutaneous Respiratory Assist Catheter**

*\*\*Greg Burgreen - Optimal LLC*

2:15pm **Immobilized Carbonic Anhydrase on Hollow Fibers Accelerates CO<sub>2</sub> Removal from Blood**

*\*\*David Arazawa - Univ of Pittsburgh*

1:00pm - 2:30pm

### BIOENGINEERING TRACK

1:00pm - 2:30pm

### BIOENGINEERING SLIDE SESSION 5

Room: Holiday Ballroom 1 - Level 2

Moderators: Karen May-Newman, PhD & Breigh Roszelle, MS

1:00pm **Compliant Thoracic Artificial Lung Design Using Fluid-Structure Interaction Modeling**

*\*\*Rebecca Schewe, MS - Univ of Michigan*

1:15pm **Robust Simulation of CFD-Predicted Hemolysis**

*\*\*Greg Burgreen, PhD - Optimal LLC*

1:30pm **Numerical Model of Thrombosis and Thromboembolization: Microfluid Effects**

*\*\*Kenneth Solen, PhD - Brigham Young Univ*

- 1:45pm **An Improved Experimental Wall Shear Estimation within a 50cc Penn State Blood Pump**  
\*\*Jason Nanna, BS - Penn State Univ
- 2:00pm **Numerical and Experimental Investigation of the Flow through the LVAD Outlet Conduit-Aorta Anastomosis**  
\*\*Esra Sorguven, PhD - Yeditepe Univ
- 2:15pm **Flow Patterns of the LVAD-Assisted Left Ventricle Studied in a Mock Circulatory Loop**  
\*\*Karen May-Newman, PhD - San Diego State Univ

8:00am - 12:00pm

**BIOENGINEERING POSTER SESSION 3****Models & Surfaces to Improve Artificial Organs**

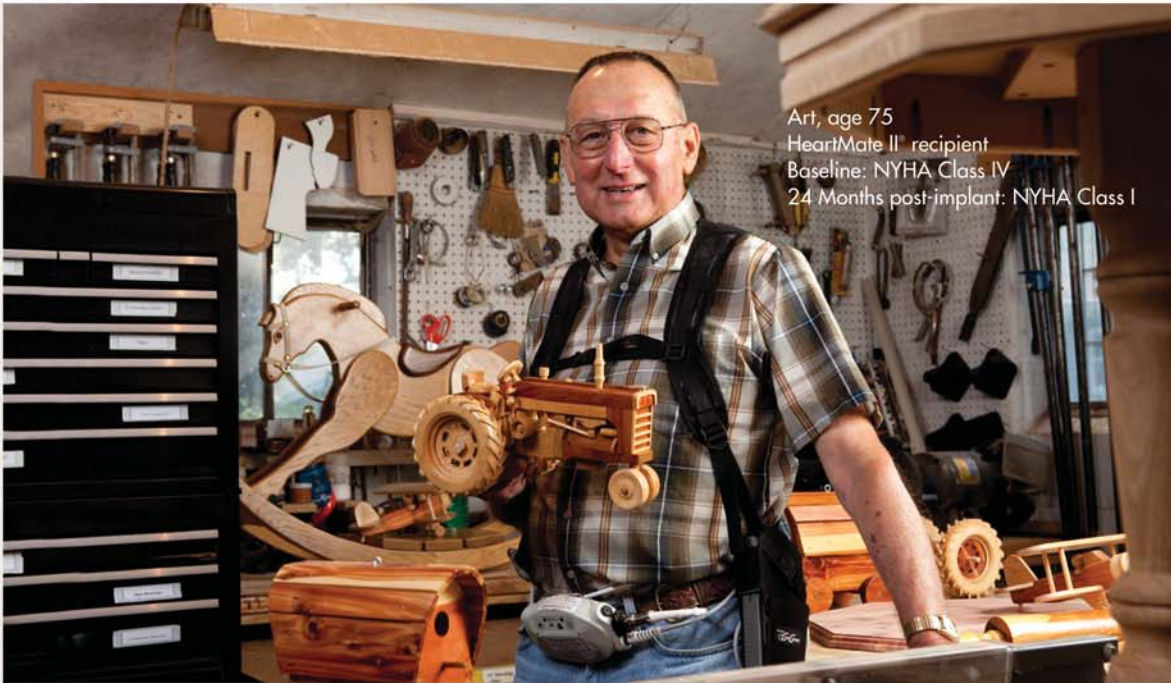
Room: Exhibit Area - Key Ballroom 6 - Level 2

Posters Available Until 12 Noon

**Board #**

- 149 **Delivering Physiologic Pulse Pressures with Continuous Flow Ventricular Assist Devices**  
\*\*Mickey Ising - Univ of Louisville
- 150 **Blood Dispersion in Capillaries**  
\*\*David Macku, MD, MSc - Czech Technical Univ
- 151 **Assessing Shear-Induced Platelet Activation: In Vitro Comparison between Human and Bovine Blood**  
Qijin Lu, PhD - FDA
- 152 **Design of a New Mag-Lev Hemolyzer Using CFD**  
\*\*Zhongjun Wu, PhD - Univ of Maryland
- 153 **Analysis of Pulsatile Flow in a Quasi-Angiostenosis Model Using the Finite Element Method**  
Naoki Katsura, MS - Toin Univ of Yokohama
- 154 **Pressure Versus Volume Loop Assessment for a Physical Cardiovascular Simulator System**  
Jeison Fonseca, MSc - Institute Dante Pazzanese of Cardiology
- 155 **3-D Reconstructed Patient-Specific Cavopulmonary Connection with Mechanical Assistance in the Inferior Vena Cava**  
\*\*Sonya Bhavsar, BS - Virginia Commonwealth Univ
- 156 **Chitosan/Gelatin Modified Film for Use in Prevention of Postoperative Peritoneal Adhesions**  
Elyas Shamram, MSc - Iran Univ
- 157 **Coating Polymers with a Human Extracellular Matrix (hECM) Significantly Improves Implant Biocompatibility**  
Emmett Pinney - Histogen Inc

- 158 **Construction of a System for Analysis of Cell Population Behavior on a Fibrous Scaffold**  
\*\*Hiroo Noguchi, MS - Tokyo Denki Univ
- 159 **Platelet Adhesion to Polyurethane Urea under Cardiac Impulse**  
\*\*Katherine Chorpennig, MS - Penn State Univ
- 160 **Fibrinogen Bioactivity and Platelet Adhesion on Biomaterial Surfaces**  
\*\*Christopher Siedlecki, PhD - Penn State Univ
- 161 **Contact Activation of Blood Coagulation by Mixed Thiol Self-Assembled Monolayers**  
James Bauer - Penn State Univ
- 162 **Evaluation of Cell Proliferation Potential on a Fibrous Scaffold Structure**  
\*\*Kazuhiro Nonaka, MS - Tokyo Denki Univ
- 163 **Simulation of Breathing Effects and Movement Artifacts in Mock Circuits**  
\*\*Heinrich Schima, PhD - Medical Univ of Vienna



Art, age 75  
HeartMate II® recipient  
Baseline: NYHA Class IV  
24 Months post-implant: NYHA Class I

*"I can breathe; I can walk; I can do almost anything now.  
I can play with my grandkids."*

## MCS Therapies for any Patient, any Time

For more than 30 years, Thoratec® has been committed to developing advanced medical technologies to improve patient survival and quality of life.

Today, Thoratec offers the broadest range of mechanical circulatory support options available and has the experience and commitment required to support these proven therapies.



**THORATEC®**  
CORPORATION

Save. Support. Restore.™



# CABLE TALK

**The braided Jarvik 2000<sup>®</sup> postauricular cable has had no failures in patients implanted up to 7½ years.**

**The new spiral abdominal cable has exceeded 20 million flex-test cycles without failure, compared to failure within ½ million test cycles for the previous design.**

**The longest patient support with an abdominal cable is 6½ years.**

## **The infection rate of the Jarvik 2000 cable is low.**

**388 patients were supported 244 years with no pump replacements for cable, pump, or pocket infection. These included:**  
**114 postauricular cable "Long Term" patients**  
**274 abdominal cable "Bridge to TX" patients**

**Event incidences per patient were:**

**4.1% cable infections**

**0.8% pump infections**

**4.9% total**

**Event rates per patient year were:**

**0.066 cable infections**

**0.012 pump infections**

**0.078 total**

**Most infections were managed successfully with antibiotics.**