

# Angiomyogenesis & Cell Therapy

Tuesday & Wednesday, February 12 & 13, 2008

The **Angiomyogenesis & Cell Therapy** Symposium will provide attendees with a comprehensive understanding of the rapidly expanding advances in the use of gene and especially of cell therapy in 3 different clinical contexts: the treatment of myocardial scar, of chronic myocardial ischemia, and of acute myocardial infarction. An emphasis will be placed on understanding the basic molecular mechanisms by which cell therapy may lead to biologically important clinical improvement in each of these 3 contexts, as important differences exist. Using the insights derived from an understanding of these basic mechanisms, both standard and novel therapeutic approaches will be discussed. This year will have an expanded session on tissue engineering as a strategy to replace myocardial scar. Finally, results of the latest clinical trials will be presented and discussed in depth. The presentations and discussions will be led by a distinguished faculty, comprised of the investigators who have been directly involved in the basic research and in the clinical trials of this Symposium. The format of the Symposium encourages faculty to faculty, and faculty to audience interaction.

## Who should attend?

Basic scientists, cardiologists, hematologists, vascular biologists, molecular biologists, researchers in angiogenesis and myogenesis, nurses and other healthcare professionals

## Course Director:

### Stephen E. Epstein, MD

Cardiovascular  
Research Institute  
Washington, DC

## Course Co-Directors:

### Roberto Bolli, MD

University of Louisville  
Louisville, KY

### Timothy D. Henry, MD

Minneapolis Heart Institute  
Minneapolis, MN

### Douglas W. Losordo, MD

Northwestern University  
Feinberg School of Medicine  
Chicago, IL

### Charles E. Murry, MD

University of Washington -  
Center for Cardiovascular  
Biology  
Seattle, WA

### Michael Simons, MD

Dartmouth-Hitchcock  
Medical Center  
Lebanon, NH

### Gordana

### Vunjak-Novakovic, PhD

Columbia University  
New York, NY

## Invited Faculty:

### Atta Behfar, MD

Mayo Clinic  
Rochester, MN

### Mary Susan Burnett, PhD

MedStar Research Institute  
Washington, DC

### Nabil Dib, MD, MSc

Cardiovascular and Stem Cell  
Consultants  
La Jolla, CA

### Stefanie Dimmeler, PhD

University of Frankfurt  
Frankfurt, GERMANY

### Helmut Drexler, MD

Medical University Hannover  
Hannover, GERMANY

### Egbert Flory, MD

Paul Ehrlich Institut  
Langen, GERMANY

### Frank J. Giordano, MD

Yale University  
New Haven, CT

### Eva Guinan, MD

Harvard Medical School  
Boston, MA

### Joshua M. Hare, MD

University of Miami  
Miami, FL

### Steven R. Houser, PhD

Temple University School of  
Medicine  
Philadelphia, PA

### Stefan P. Janssens, MD, PhD

University of Leuven  
Leuven, BELGIUM

### Robert A. Kloner, MD, PhD

Good Samaritan Hospital  
Los Angeles, CA

### Michael Laflamme, MD, PhD

University of Washington  
Seattle, WA

### Richard T. Lee, MD

Harvard Medical School  
Cambridge, MA

### Jonathan Leor, MD

Neufeld Cardiac Research  
Institute  
Tel Hashomer, ISRAEL

### Rongliu Liao, PhD

Brigham and Women's  
Hospital  
Boston, MA

### Keith L. March, MD, PhD

Indiana University School of  
Medicine  
Indianapolis, IN

### Ellen V. Maher, MD

United States Food and  
Drug Administration  
Rockville, MD

### Richard D. McFarland, MD, PhD

United States Food and  
Drug Administration  
Rockville, MD

### Volker Schächinger, MD

J.W. Goethe University  
Frankfurt, GERMANY

### Warren Sherman, MD

New York-Presbyterian  
Hospital/Columbia University  
Medical Center  
New York, NY

### Tatsuya Shimizu, MD, PhD

Institute of Advanced  
Biomedical Engineering and  
Science, Tokyo Women's  
Medical University  
Tokyo, JAPAN

### Doris A. Taylor, PhD

Center for Cardiovascular  
Repair  
Minneapolis, MN

### James T. Willerson, MD

University of Texas Health  
Science Center  
Houston, TX

### Andreas M. Zeiher, MD

J.W. Goethe University  
Frankfurt, GERMANY

### Wolfram-Hubertus Zimmermann, MD

University Medical Center  
Hamburg-Eppendorf  
Hamburg, GERMANY

## Tuesday, February 12, 2008

7:55 AM

Welcome and Introduction  
*Stephen E. Epstein, MD*

### Cells for Myocardial Repair and Collaterogenesis

#### State of the Art

8:00 AM

A New Approach to Tracking Cell Fate and Regeneration  
*Richard T. Lee, MD*

8:25 AM

Embryonic Stem Cells in Myocardial Repair  
*Charles E. Murry, MD*

8:50 AM

Adult Stem Cells in Myocardial Repair  
*Roberto Bolli, MD*

9:15 AM

Regulation of Progenitor Cell Homing and Cell Enhancement Strategies  
*Stefanie Dimmeler, PhD*

9:40 AM

Coffee Break

9:55 AM

Side Population and Cardiac Progenitor Cells: Role of the Bone Marrow in Repopulating the Pool of Cardiac Progenitor Cells  
*Rongliu Liao, PhD*

10:20 AM

Do New Cardiomyocytes Appear Spontaneously Postnatally? Observations During Adolescent Growth in the Feline Heart  
*Steven R. Houser, PhD*

#### Marrow, Blood and Adipose Cells

10:45 AM

Bone Marrow Derived Cells  
*Joshua M. Hare, MD*

11:05 AM

Adipose Stem Cells in Angiogenesis and Vasculogenesis  
*Keith L. March, MD, PhD*

#### Embryonic Stem Cells

11:30 AM

Specification of Pacemaker: Atrial and Ventricular Cardiomyocytes from Embryonic Stem Cells  
*Michael Laflamme, MD, PhD*

11:55 AM

Survival and Maturation of Human Embryonic Stem Cell-Derived Cardiomyocytes in Rat Hearts  
*Robert A. Kloner, MD, PhD*

12:20 PM

Stem Cell Guidance as an Avenue to Overcome the Risk of Tumorigenesis  
*Atta Behfar, MD*

12:45 PM

Lunch

#### Immunobiology of Cell Transplantation

1:45 PM

Immune Issues Relating to Cell Therapy for Angiogenesis and Myogenesis: Allogenic vs. Autologous Therapy  
*Eva Guinan, MD*

2:05 PM

**Panel Discussion:**  
Which Cell is Best?

2:35 PM

Coffee Break

#### Repairing the Myocardium by Tissue Engineering

2:50 PM

Tissue Engineering: Basic Concepts and Limitations  
*Gordana Vunjak-Novakovic, PhD*

3:15 PM

Cell Sheet Engineering  
*Tatsuya Shimizu, MD, PhD*

3:40 PM

Bioengineered Human Myocardium  
*Wolfram-Hubertus Zimmermann, MD*

4:05 PM

Cell-free Myocardial Repair  
*Jonathan Leor, MD*

4:30 PM

Creating an Autologous Bioartificial Whole Heart with Stem Cells  
*Doris A. Taylor, PhD*

4:55 PM

**Panel Discussion:**  
Repairing the Myocardium by Tissue Engineering

5:20 PM

Adjourn

## Evening Symposium, Tuesday, February 12, 2008

### Regulatory Issues Involved in Cell Therapy for Cardiovascular Therapeutics

Topics:

1. Issues Involved in Administering Autologous Cells: "What's the Drug and is it Important to Know?"
2. Issues Involved in Administering Allogeneic Cells or Cell Products: "What Data do we Need to Prove that Allogeneic Products are Safe?"
3. Pre-clinical Data: How Much is Enough, and What is too Much?"

Panel including *Ellen V. Maher, MD* & *Richard D. McFarland, MD, PhD* of the FDA, and *Egbert Flory, MD* of the German Regulatory Board, as well as others from academia and industry.

Wednesday, February 13, 2008

## Collaterogenesis

### Newly Identified Mechanisms

8:00 AM

Epigenetic Regulation of Neovascularization  
*Stefanie Dimmeler, PhD*

8:25 AM

Angiogenesis-Driven Myocardial Hypertrophy  
*Michael Simons, MD*

### Novel Approaches to Collaterogenesis

8:50 AM

Post MI Expression of VEGF-Activating Zinc Finger Protein Increases Progenitor Cell Mobilization and Recruitment and Improves Outcome  
*Frank J. Giordano, MD*

9:15 AM

Paracrine Mediators: Use of the Totality of the Secreted Products of Progenitor Cells for Collaterogenesis  
*Mary Susan Burnett, PhD*

9:40 AM

Update on a Novel Targeting Strategy to Specifically Deliver Therapeutic Agents to Developing Collaterals  
*Stephen E. Epstein, MD*

10:05 AM

Break

## Cell and Gene Therapy for Myocardial Repair and for Collaterogenesis: Randomized Clinical Trials

### Methodological Issues

10:20 AM

Influence of Different Methods of Bone Marrow Cell Processing on Clinical Outcomes  
*Andreas M. Zeiher, MD*

10:45 AM

The Role of MRI in Endpoint Assessment: An Update  
*Stefan P. Janssens, MD, PhD*

### Patients with Heart Failure

11:10 AM

Effects of Transcatheter Transplantation of Functionally Competent BMCs in Patients With Chronic Postinfarction Heart Failure: An Update of the TOPCARE-CHD Trials  
*Andreas M. Zeiher, MD*

11:35 AM

Results of a Randomized Stem Cell Trial for Patients with CAD and Impaired Cardiac Function  
*James T. Willerson, MD*

12:00 PM

Lunch

### Patients with Chronic Myocardial Ischemia

1:00 PM

Review of the Randomized Trials and Early Results of CD34+ Cells for Intractable Myocardial Ischemia  
*Douglas W. Losordo, MD*

1:25 PM

Review of the Randomized Trials Using Skeletal Myoblasts:

The Mytogen Experience

*Nabil Dib, MD, MSc*

The Bioheart Experience

*Warren Sherman, MD*

2:05 PM

Overview of Randomized Gene Therapy Trials for Collaterogenesis, and Biologic Insights Responsible for Failure  
*Timothy D. Henry, MD*

### Patients with AMI

2:30 PM

Improved Clinical Outcome After Intracoronary Administration of Bone-Marrow-Derived Progenitor Cells in Acute Myocardial Infarction: 2 Year Results of the REPAIR-AMI Trial  
*Volker Schächinger, MD*

2:55 PM

Allogeneic MCSs: The PROVACEL Trial  
*Joshua M. Hare, MD*

3:20 PM

Overview of the Randomized Cell Therapy Clinical Trials for Chronic Ischemia and AMI - Why are the Efficacy Signals Still Weak?

*Stephen E. Epstein, MD*

3:45 PM

### Panel Discussion:

Cell-based Strategies for Myocardial Repair and for Collaterogenesis: Role of Pre-Clinical Studies; How Compelling are the Efficacy Signals?; How Do You Choose Cell Type, Patient Cohort, and Mode of Delivery?

4:45 PM

Adjourn



## Dates to Remember

### Abstract Submission

September 1, 2007 - December 14, 2007

Questions? Email [CRTabstracts@gmail.com](mailto:CRTabstracts@gmail.com)

The Evening Poster Reception will take place on Monday, February 11, 2008 in the Exhibit Hall at CRT.

### Online Registration Available

September 1, 2007 - February 6, 2008

After February 6, 2008, registration will only be available on-site.

### Hotel Reservation Deadline

January 11, 2008

Tuesday, February 12, 2008

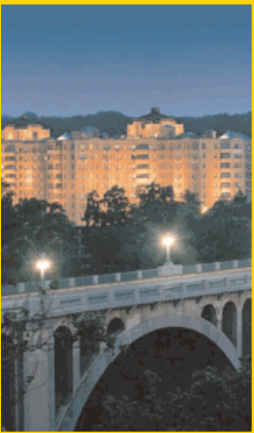
### Tim Russert

Managing Editor and Moderator of NBC's

*Meet the Press* will speak at a special

CRT 2008 Evening Event

"A View from Washington: Election 2008"



### CRT 2008 will take place at the Omni Shoreham Hotel in Washington, DC.

The four-diamond Omni Shoreham Hotel is located at 2500 Calvert Street, NW, Washington, DC 20008. It is just 8 miles from Reagan National Airport and 28 miles from Dulles International Airport.

The preferred group rate for CRT 2008 attendees is \$229, per room, per night, single or double occupancy.

The tax is 14.5% per room, per night.

Please indicate that you will be attending "CRT 2008" to receive the preferred group rate.

To make room reservations:

**By phone:** Please call Central Reservations at: 1-800-THE-OMNI (843-6664).

**Online:** Visit [www.CRTonline.org](http://www.CRTonline.org) and click on the CRT 2008 logo for a direct web link and special instructions on how to make online hotel reservations.

The cut-off date for making reservations is Friday, January 11, 2008.

Reservation requests received after the cut-off date will be based on availability at the hotel's prevailing rates.



Visit [www.CRTonline.org](http://www.CRTonline.org) for the most up-to-date information