

“If the last century was the century of physics, then this is the age of biotechnology. We are constantly developing powerful scientific and clinical tools,” says Valentin Fuster, MD, PhD, Chief of the Division of Cardiology, Richard Gorlin, MD/Heart Research Foundation Professor, Director of Mount Sinai Heart, the Zena and Michael Wiener Cardiovascular Institute, and the Marie-Josée and Henry R. Kravis Center for Cardiovascular Health.

# Division of Cardiology

As one example, he notes that, “we are the only center in the tristate area that performs robotic catheter ablations for cardiac arrhythmias.” These procedures, which provide greater accuracy and safety than nonrobotic approaches, are performed under the directorship of Davendra Mehta, MD, Associate Professor, who notes that the volume of these procedures has risen by 15 percent over each of the past three years.

In the technology-rich field of interventional cardiology, Dr. Fuster points to the superb reputation of the Cardiac Catheterization Laboratory under the direction of Samin Sharma, MD, Zena and Michael A. Wiener Professor. For several years running, Dr. Sharma has been ranked the number one interventional cardiologist in New York State, with the highest number of cases performed and least number of complications.

“Cutting-edge information technology is also becoming increasingly essential to patient care,” notes Dr. Fuster. Diagnosis and treatment are being expedited through two Division-based initiatives. Consolidation of all cardiac-related imagery into one central system allows physicians to evaluate patients’ cardiac history over time rapidly and efficiently. In Echocardiography, the switch to electronic results reporting begun in 2005 and expanded in 2007 is providing faster results reporting and allowing remote access so doctors can query echo results anytime.

As the selection of achievements listed here indicates, the Division has experienced an exceedingly productive year.

- Of a number of national and international honors conferred upon Dr. Fuster in the past year, his election to membership in the European Academy of Arts and Sciences, and receipt of the Polzer Prize from that august body, stand out as among the most prestigious.
- Leadership positions in national professional societies, such as the American Heart Association and the American Board of Vascular Medicine, were conferred upon Division faculty members in 2007, including Eric Adler, MD, Assistant Professor; Jonathan Halperin, MD, Professor; Jeffrey Olin, MD, Professor; and Barry Stimmel, MD, Professor.
- Division faculty, residents, fellows and nursing staff participated in over 30 local community health fairs and screenings, providing cardiac risk assessment to the local community.



- Patient enrollment was completed for two important clinical trials. The Precise SKS study, led by Dr. Sharma and Annapoorna Kini, MD, Associate Professor, is a pilot study comparing the treatment of coronary artery bifurcation lesions with simultaneous kissing stents (SKS) versus standard one-stent technique. The second—BARI-2D, led by Michael Farkouh, MD, Associate Professor and Donald Smith, MD, Associate Professor—is a large study of 2300 subjects designed to answer critical questions related to treating coronary artery disease in patients with type 2 diabetes.
- With the establishment of the Mount Sinai CVI Clinical Trials Unit, the Division has assumed coordinating roles in numerous international trials, including the 18,000-patient TARGET trial evaluating the efficacy of various anti-inflammatory medications.
- Mario Garcia, MD, Professor, was voted one of the Top Five Cardiovascular Imaging Specialists in the United States by Diagnostic Imaging North America.
- The first specialty heart failure/transplant fellowship was established for fellows completing their general cardiology fellowship.
- The Division’s Ventricular Assist Device (VAD) program implanted nearly twice the number of assistive devices compared to the previous two years, making Mount Sinai one of the nation’s largest and most experienced VAD centers.
- The five-year FREEDOM Trial led by Dr. Fuster and Michael Farkouh, MD, Associate Professor, reached the 1000-patient milestone, making it the largest database of diabetic subjects with multivessel coronary disease to date.
- Mary Ann McLaughlin, MD, Assistant Professor, and Dr. Garcia received funding from the National Institute for Occupational Safety and Health to work with colleagues in the Department of Community and Preventive Medicine to screen law enforcement personnel for cardiovascular problems related to their work at Ground Zero.

## GENE THERAPIES, STEM CELLS, AND REGENERATED HEARTS *Cardiovascular Medicine on the Edge of Tomorrow*

The Cardiovascular Research Center (CVRC), under the direction of Roger Hajjar, MD, Arthur and Janet C. Ross Professor, has grown tremendously over the past year. Dr. Hajjar’s own dedication to experimental gene therapies in heart failure received substantial support from two NIH grants this past year. The first supports use of gene transfer techniques to alter calcium regulation in heart cells. The second takes a unique genetic approach to assessing the efficacy of injecting bone marrow-derived stem cells into hearts after myocardial infarction to prevent cardiac remodeling.

In addition to his own work, Dr. Hajjar has recruited a stellar team working in diverse areas of cardiac research:

- Dr. Adler, a graduate of the Division’s fellowship program, is collaborating closely with Dr. Hajjar on designing novel stem cell treatments for heart failure.
- Hina Chaudhry, MD, Associate Professor, is directing the newly established Cardiovascular Regenerative Medicine program. She is a leader in this rapidly developing field, which focuses on growing new cardiac and vascular tissue through gene and stem cell therapies.
- Jill Kalman, MD, Associate Professor, and director of the newly created Cardiomyopathy Program of the Heart Failure and Transplant Program, is an expert in research and treatment of congestive heart failure. On the clinical side, she has established the multidisciplinary Mount Sinai Heart Failure Program to improve quality of life for patients with heart failure.
- Assistant Professors Fadi Akar, MD, Yoshiaki Kawase, MD, Djamel Lebeche, MD, Jiqui Chen, MD, and Thomas Weber, PhD, are each conducting independent research using leading-edge approaches to the study of heart failure that include optical mapping of arrhythmias and the use of experimental gene therapies to treat angiotensin-mediated hypertension.