

DEAN'S REPORT

THE NEWS OF THE YEAR

THE WORK OF DECADES

An insight into the vision and methodology of some of
the world's most widely respected scientists and physicians



MOUNT SINAI
SCHOOL OF
MEDICINE

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DENNIS S. CHARNEY, MD
DEAN OF MOUNT SINAI SCHOOL OF MEDICINE, EXECUTIVE VICE PRESIDENT FOR ACADEMIC AFFAIRS OF THE MOUNT SINAI MEDICAL CENTER, AND THE ANNE AND JOEL EHRENKRANZ PROFESSOR IN THE DEPARTMENTS OF PSYCHIATRY, NEUROSCIENCE, PHARMACOLOGY, AND SYSTEMS THERAPEUTICS

Message from the Dean

I am honored to present the Dean's Report. The accomplishments you will read about are emblematic of an academic medical center that strives for ongoing excellence in basic research, clinical research, patient care, and education.

Mount Sinai serves one of the most diverse and complex patient populations in the world. The unified leadership and streamlined organization of the Medical School and Hospital have long attracted researchers and clinicians who share a deep commitment to community involvement, intellectual exchange, and integrated teamwork.

This close collaboration has produced extraordinary results, and has earned Mount Sinai recognition from the cornerstones of society—government, foundations, national leaders and opinion makers, and the media. These accolades are not isolated milestones. They are the latest chapters in the ongoing work of some of the world's most renowned scientists and physicians.

This report, *The News of the Year – The Work of Decades*, offers an insight into the vision and methodology of some of the world's most widely respected scientists and physicians and the global impact of their achievements.

You will read how Drs. Peter Palese and Adolfo García-Sastre have transformed the way society approaches vaccine development and pandemics. Most recently, their groundbreaking research received the highest recognition from *The Lancet* and from the

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National Institutes of Health, which named Mount Sinai a Center of Excellence for Influenza Research and Surveillance.

World-famous stem cell biologist Dr. Ihor Lemischka has moved Mount Sinai into the forefront of stem cell research. Under his direction, the Black Family Stem Cell Institute is poised to be a major recipient of New York State's recently announced \$100 million commitment in 2008 to stem cell research.

When environmental health pioneer Dr. Philip Landrigan stood up for the heroes of 9/11 with the definitive study of their ongoing health problems, the public, Senator Hillary Clinton, and her congressional colleagues took note. His work continues to push the national standards.

At the Head and Neck Cancer Center, Dr. Eric Genden and his colleagues are making history and transforming the lives of patients by developing truly remarkable surgical techniques.

The vision of world-renowned cardiologist Dr. Valentin Fuster has launched Mount Sinai Heart, which is taking a truly global approach to the eradication of heart disease. The cardiology team also includes some of the nation's most innovative cardiothoracic surgeons whose pioneering surgical techniques are redefining the standards of mitral valve and aortic aneurysm care.

Dr. Angela Diaz and her colleagues at The Mount Sinai Adolescent Health Center have created a national model for kids in crisis. This year, The Atlantic Philanthropies has recognized their leadership role with a five-year, \$12 million grant to expand their work.

The East Harlem Health Outreach Partnership, founded and run by Mount Sinai medical students, received the Presidential Community Service Award. No other medical school was so honored.

Dramatic changes to medical education, led by Dr. David Muller, are already redefining the Mount Sinai experience. Our MD students will have more patient contact and responsibilities from the very beginning of their training by participating in innovative pilot programs that seamlessly combine technical training with compassionate caregiving.

The matriculating classes to our medical and graduate schools are among the most talented in the nation. As we continue to attract this caliber of students, we also plan to expand our highly competitive MD/PhD program so that one-quarter of our students will be pursuing dual degrees that focus on all three areas of academic medicine—research, teaching, and clinical care.

At the Graduate School of Biological Sciences, which was ranked third among top specialized research institutions, new thematically oriented PhD programs will be linked to the initiatives of specific research institutes under the leadership of Dr. John Morrison, Mount Sinai's new Dean of the Basic Sciences and the Graduate School of Biological Sciences.

Dr. Morrison, an acclaimed neuroscientist, received a prestigious National Institutes of Health MERIT Award from the National Institute on Aging for his work on brain cell neuroplasticity. His patient-centered approach is a model for the next generation of basic scientists.

We have enjoyed one of the most exciting chapters in the history of Mount Sinai School of Medicine. Our clinical and research faculty have contributed to this remarkable period. The accomplishments of our research faculty have been extraordinary, as reported by the level of National Institutes of Health funding, now in the top twenty in the United States. At the same time, the staff at the Faculty Practice Associates continue to lead in delivering state-of-the-art clinical care. Finally, the fiscal condition of the School is very strong.

We end the report with a financial overview of Mount Sinai School of Medicine and our Faculty Practice Associates, as well as a selection of faculty awards and honors. Our faculty accomplishments are pivotal to the success of this institution and reflect an exceptional level of productivity and progress. I congratulate all of my colleagues on their accomplishments.

I also want to take this opportunity to preview Mount Sinai's new strategic plan. It heralds the next stage in Mount Sinai's evolution as one of the world's outstanding medical institutions, and it will be published in its entirety in 2008.

On The Horizon: The Strategic Plan

It is particularly fitting to discuss a strategic plan so closely aligned with the future of translational research and patient care. Translational medicine is not a new concept at Mount Sinai. It lies at the heart of what prompted dedicated Mount Sinai physicians to create the Medical School in 1963.

The strategic plan is guided by an important principle. The Mount Sinai School of Medicine will invest in areas in which Mount Sinai can provide world-class leadership in research, education, and treatment, and that support Mount Sinai's mission of putting excellence in patient care at the center of its work.

At the heart of our plan is the establishment of twelve new research institutes. These institutes of excellence are designed to facilitate breakthrough science. Each institute brings together scientists from multiple departments with diverse but complementary areas of

expertise and will offer basic and clinical researchers the intellectual and physical space they need to do their very best work.

The institutes will be located across the Mount Sinai campus, strategically placed to bridge clinical care and laboratory research. Innovations in architecture and structural design will encourage clinicians and researchers from different fields to exchange ideas and make critical connections—in the lab, at the bedside, even over a cup of coffee.

The creation of these new institutes will also enhance the Mount Sinai educational experience. At the Graduate School of Biological Sciences, new thematically oriented PhD programs will be linked to the translational goals and work of specific research institutes. This approach focuses PhD students on medical problems and gives them access to clinical faculty from the very outset of their training.

Thus, introductory training in neuroscience may involve lectures about neurodegenerative diseases from doctors, patients, and family members of afflicted individuals, while the immunology program would have similar presentations dealing with progressive autoimmune disorders and organ transplant recipients. This orientation will help these basic scientists focus on medically important questions and further their understanding of the clinical impact of their work.

Plans are also under way to develop a new PhD program in Clinical Research, built upon the existing master's degree. This expansion will produce a cadre of professionals equipped to design, conduct, and direct clinical research, including the evaluation of new drugs and devices.

Mount Sinai will make certain that at the earliest possible opportunity, patients will have greater access to new treatments, drugs, and devices developed by our translational researchers.

A new information infrastructure is being constructed that will electronically connect all areas of the Medical Center, providing unprecedented opportunities for improving patient care, medical records, research, administration, and overall quality control.

We are recruiting new clinical and research faculty in all of our departments. During the next year, we will begin to construct a new world-class research building, the Center for Science and Medicine, which will increase our research capacity by about 30 percent. This facility will enhance our ability to make major discoveries that will lead to new treatments for the most serious of illnesses. In early 2008, we will open a new ambulatory care building, the Center for Advanced Medicine, which will further expand our ability to provide the very best care to our patients.

Taken as a whole, our strategic plan is a natural outgrowth of the tradition of excellence that has driven Mount Sinai since its founding. It is a privilege to work with our faculty, trustees, students, and friends of Mount Sinai to bring it to fruition.



CENTER FOR ADVANCED MEDICINE

The Institutes

BRAIN INSTITUTE

Investigations will focus on aging, neuropsychiatric and neurodegenerative disorders, recovery of function after traumatic brain injury or stroke, retraining of the brain, experimental therapeutics, genetics of neuropsychiatric disorders, and imaging. This highly collaborative research will involve faculty in the fields of basic neuroscience, clinical neurology, ophthalmology, psychiatry, and rehabilitative medicine, and will pursue avenues for the protection, enhancement, and restoration of brain function.

Interim Director*

John Morrison, PhD, Dean of Basic Sciences and the Graduate School of Biological Sciences and the W. T. C. Johnson Professor of Geriatrics and Adult Development

CANCER INSTITUTE

Researchers will aggressively pursue ongoing basic research, as well as biobehavioral and epidemiology programs that improve the diagnosis, prevention, and treatment of cancer. Clinicians will design more technologically advanced, minimally invasive surgical procedures designed to improve

the quality of life of cancer patients. The Cancer Institute will also work in close partnership with Mount Sinai's new Experimental Therapeutic Institute.

Interim Director*

George F. Atweh, MD, the Lillian and Henry M. Stratton Professor of Medicine, Chief of the Division of Hematology, and Professor of Gene and Cell Medicine

THE ZENA & MICHAEL A. WIENER CARDIOVASCULAR INSTITUTE

A multidisciplinary team of the world's leading cardiologists will explore the underlying mechanisms of heart disease and pursue new preventive approaches, diagnostic procedures, and treatments. Their work will complement the global clinical and research efforts currently under way at Mount Sinai Heart.

Director

Valentin Fuster, MD, PhD, Director of Mount Sinai Heart and of the Marie-Josée and Henry R. Kravis Center for Cardiovascular Health, and the Richard Gorlin, MD/Heart Research Foundation Professor

INSTITUTE FOR CHILD HEALTH AND DEVELOPMENT

Research efforts will focus on the cellular, molecular, environmental, and genetic mechanisms underlying asthma and allergies, diabetes and obesity, and neurodevelopmental and psychological disorders in children. Researchers will work closely with clinicians who are exploring new approaches to prevention and care.

Interim Directors*

Frederick Suchy, MD, the Herbert H. Lehman Professor and Chair of the Department of Pediatrics and Pediatrician-in-Chief at Mount Sinai School of Medicine

Philip J. Landrigan, MD, the Ethel H. Wise Professor and Chair of Community and Preventive Medicine

EMERGING PATHOGENS INSTITUTE

Building on Mount Sinai's internationally recognized work in influenza, HIV, hepatitis C, and other diseases, scientists will collaborate to study infectious diseases and the pathogens that cause them. The ultimate goal is to develop novel approaches to therapy and to the prevention of infectious disease.

Directors

Mary Klotman, MD, Chief of the Division of Infectious Diseases, the Irene and Dr. Arthur M. Fishberg Professor of Medicine (Infectious Diseases), Professor of Microbiology, and Associate Professor of Gene and Cell Medicine

Adolfo García-Sastre, PhD, Professor of Microbiology and Medicine (Infectious Diseases) and the Fischberg Chair in Medicine

IMMUNOLOGY INSTITUTE

The Institute will build on Mount Sinai's expertise in immunology, infectious diseases, autoimmunity, and transplantation to develop better immunosuppressive medication for use in organ transplantation, as well as stem cell transplant alternatives. Scientists will also work to discover new treatments for a range of diseases related to altered immune function.

Directors

Lloyd Mayer, MD, Professor of Medicine and Chief of the Divisions of Clinical Immunology and Gastroenterology

Sergio Lira, MD, PhD, Professor of Medicine



CENTER FOR SCIENCE AND MEDICINE

INSTITUTE FOR METABOLIC DISORDERS

Researchers will explore the relation between diabetes and obesity, with special attention paid to the role of genetics. Investigations will be geared toward uncovering better prevention and treatment strategies, examining factors that contribute to kidney failure and other complications of metabolic disease, and modifying risk factors for metabolic disorders.

Director

Derek LeRoith, MD, PhD, the Lillian and Henry M. Stratton Professor of Molecular Medicine, Chief of Endocrinology, and Professor of Medicine (Endocrinology)

INSTITUTE FOR EPIDEMIOLOGY, BIOSTATISTICS, AND PREVENTION

Scientists within the Institute will investigate the genetic and environmental causes of various diseases and study the effectiveness of their diagnosis and treatment. The specific areas that will be targeted are cardiovascular disease, kidney disease, diabetes, infectious diseases, psychiatric disease, and geriatric and perinatal epidemiology.

Director

David A. Savitz, PhD, the Charles W. Bludhorn Professor of International Community Medicine, and Professor of Community and Preventive Medicine and of Obstetrics, Gynecology, and Reproductive Science

EXPERIMENTAL THERAPEUTIC INSTITUTE

The Institute will provide a research infrastructure to accelerate translational research throughout Mount Sinai by conducting scientific and commercial assessments of promising research and technology, performing preclinical testing, and developing relationships with pharmaceutical and medical device companies. Building on these research discoveries, investigators will collaborate to develop new drugs, devices, and intellectual property.

Interim directors*

Srinivas (Ravi) Iyengar, PhD, the Dorothy H. and Lewis Rosenstiel Professor and Chair of Pharmacology and Systems Therapeutics, and Professor of Oncological Sciences and of Psychiatry

Savio L. C. Woo, PhD, Professor and Chair of Gene and Cell Medicine, and Professor of Genetics and Genomic Sciences and of Oncological Sciences

Ming-Ming Zhou, PhD, the Dr. Harold and Golden Lamport Professorship in Physiology and Biophysics, Professor and Chair of Structural and Chemical Biology, and Professor of Oncological Sciences and of Pharmacology and Systems Therapeutics

INSTITUTE FOR MOLECULAR IMAGING

State-of-the-art imaging technology is critical for translational and basic biomedical science, and also for advances in diagnostic medicine. It is a potent tool for precise diagnosis and for monitoring therapeutic intervention. Institute investigators will devote significant effort to developing the science of imaging, including the invention of new contrast agents and improved visualization technology.

Interim director*

Zahi A. Fayad, PhD, Director of the Translational and Molecular Imaging Institute and Professor of Radiology and Medicine (Cardiology)

CHARLES R. BRONFMAN INSTITUTE FOR PERSONALIZED MEDICINE

Scientists will collect and analyze patients' genetic data to

identify patterns that account for variability in disease susceptibility and progression and responses to therapy. The Institute will use this information to develop new diagnostics and therapeutics that can be tailored to address the needs of smaller, more precisely defined patient populations with shared genetic similarities.

Director

Erwin P. Bottinger, MD, the Irene and Dr. Arthur M. Fishberg Professor of Medicine (Nephrology) and Professor of Pharmacology and Systems Therapeutics

THE BLACK FAMILY STEM CELL INSTITUTE

The Institute will integrate research in embryonic stem cells, developmental biology, and adult stem cell biology. Researchers will direct efforts toward generating certain blood, heart, and liver cells from various kinds of stem cells and using these findings to develop new therapies for multiple diseases.

Director

Ihor R. Lemischka, PhD, the Lillian and Henry M. Stratton Professorial Chair of Gene and Cell Medicine

* Indicates that a nationwide search for a permanent director is in progress.



KENNETH L. DAVIS, MD
PRESIDENT AND CHIEF EXECUTIVE OFFICER OF THE MOUNT SINAI MEDICAL CENTER,
AND THE GUSTAVE L. LEVY DISTINGUISHED PROFESSORSHIP

Message from the President and Chief Executive Officer

This is a time of unprecedented growth at Mount Sinai. Financially, The Mount Sinai Medical Center had an extraordinary year in 2006 and that trend continues for both the Hospital and the School in 2007.

In 2006, the Hospital generated its largest operating surplus ever: \$51.1 million as compared with \$35.2 million in 2005 and a loss of \$31.4 million in 2004. Combined with revenue cycle efforts, our positive performance has resulted in the highest cash balances in our history. In fact, the Hospital's cash balances have more than tripled in the past three years.

The School, too, has improved its financial footing. The endowment has reached an all-time high and progress is being made on increasing capacity for research. As one of the premier academic medical centers in New York, the Hospital, including our Queens campus, discharged nearly 65,000 patients in 2006, with total revenue of over \$1.3 billion for the Hospital and \$2.3 billion for the Medical Center.

Through conservative budgeting and tight management, we have been able to exceed our budget projections for the past two years.

The outlook for the coming year continues to be positive. This view is shared by the majority of rating agencies, who have rewarded our efforts and recognized our future potential by increasing the Hospital's credit rating by several points and awarding the School a high-quality investment grade rating.

At Mount Sinai, the seamless connection between the Hospital and the School, as well as integrated leadership, are central to our success.

At Mount Sinai, the seamless connection between the Hospital and the School, as well as integrated leadership, are central to our success. In 2007, I was privileged to announce that my colleague Dennis Charney was assuming the role of Dean of Mount Sinai School of Medicine, after having served so successfully as both Dean for Research and Dean for Academic and Scientific Affairs.

Dr. Charney has created a fertile environment for breakthrough work by revitalizing and reinforcing Mount Sinai's greatest strengths: accelerating the pace at which research moves from the bench to the bedside; improving cooperation across disciplines; and enhancing the integration of the research, clinical, and academic missions.

Our recent accomplishments at the School are a tribute to Dr. Charney's leadership and to the quality of our faculty. In many areas, our students are taught by professors who have, quite literally, written the book on the subjects at hand.

Furthermore, although the National Institutes of Health's budget went up by only 2 percent last year, Mount Sinai's federal research grants increased by 12 percent. We are now ranked as twentieth in the country among medical schools by the NIH, up from twenty-fifth in the prior year. And 2007 looks like another banner year for our research program. This is quite an achievement for a stand-alone medical school.

Over the next few decades, we anticipate that medical science will experience vast breakthroughs. Our size, our unified leadership, our culture, our heritage, and the quality of our people have positioned Mount Sinai to take advantage of this revolution in the biological sciences.

It is an honor and a privilege to lead this impressive and dedicated group of clinicians, researchers, and educators who have chosen to pursue their work here at The Mount Sinai Medical Center.



PETER W. MAY
CHAIR OF THE BOARDS OF TRUSTEES

Mount Sinai's success story is a result of a major collective effort by faculty and staff to improve every aspect of our work.

Dr. Davis's strategy for success. In addition, the Hospital and the School have each received upgrades from the financial ratings agencies.

We are growing at every level. Under the forward-looking leadership of Dr. Dennis Charney, the Medical School has invested \$179 million this year in projects to support education, research, and patient care initiatives. We are undertaking a major expansion of our facilities in order to meet growing demand. We are completing a new ambulatory care building, the Center for Advanced Medicine, that will bring nearly 170,000 new square feet of space into the Medical Center.

In keeping with Mount Sinai's commitment to translational medicine, we will soon break ground on the construction of our new Center for Science and Medicine, a 470,000-square-foot research facility that will accelerate the pace at which research discoveries lead to state-of-the-art patient care. The Center will bring new therapeutics, new diagnostics, and a better understanding of the causes of disease.

We also are about to embark on a capital campaign that will fuel Mount Sinai's comprehensive strategic plan. Over the next ten years we will continue to recruit outstanding talent; build state-of-the-art facilities and a technology infrastructure that serves the needs of researchers, clinicians, and patients; create a curriculum that trains translational scientists and physicians; and develop research institutes that allow us to bring medical breakthroughs to patient care as quickly as possible.

Our plans are ambitious, but based on the outstanding performance of the Mount Sinai community, I have no doubt that we will achieve our goals. I am privileged to serve as Chair of the Boards and participate in our exciting future.

Message from the Chair of the Boards of Trustees

As Chair of the Boards since 2002, I am especially proud to report on the tremendous progress that Mount Sinai has made over the past five years in its efforts to achieve significant improvements in its fiscal health. Indeed, both the Hospital and School now generate operating surpluses after several years of having recorded significant financial losses.

The School's finances have improved by more than \$161.3 million since fiscal year 2002. In 2006 alone, our endowment showed a record increase, thanks to the generosity of donors and excellent management by our investment committee.

Mount Sinai's success story is a result of a major collective effort by faculty and staff to improve every aspect of our work. Last year, our doctors saw a record number of patients. We recruited outstanding new physicians. We renewed and reinvigorated our relationships with our voluntary staff. We redoubled our commitment to develop targeted affiliations with community hospitals and enhanced our revenue cycle efforts. All of these initiatives have resulted in operating surpluses and healthy cash balances.

Mount Sinai's President and CEO, Kenneth L. Davis, MD, has spearheaded these efforts and has led his management team to remarkable achievements that were unimaginable just a few short years ago. Not surprisingly, others have taken note. In several recent stories, the media have profiled Mount Sinai's strong position and



THE NEWS OF THE YEAR

The Lancet names “Characterization of the Reconstructed 1918 Spanish Influenza Pandemic Virus” paper of the year.

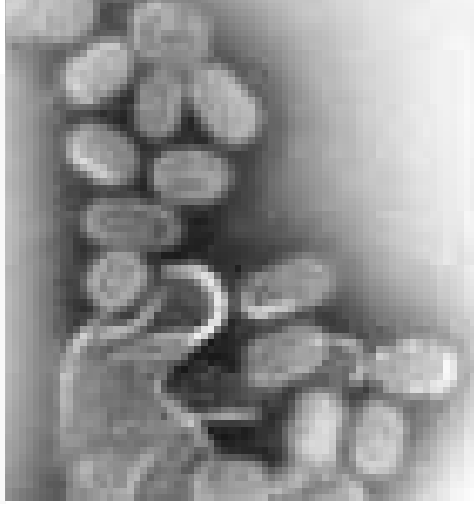
“A fascinating piece of research that could prove to be crucially important when the next influenza pandemic breaks.” *The Lancet*, February 25, 2006

THE WORK OF DECADES

Now that we can better understand the mechanisms and the virulence of these pathogens, we can work from a position of strength and produce better vaccines and antivirals.

– PETER PALESE, PHD
The Horace W. Goldsmith Professor and Chair of Microbiology

PETER PALESE, PHD (LEFT), AND ADOLFO GARCÍA-SASTRE, PHD (RIGHT)



Insights into the Immune System

Understanding viral behavior is one piece of a complex biological puzzle, and understanding how the immune system responds to viruses is another critical piece. That is where Thomas M. Moran, PhD, Professor of Microbiology, fits in. He worked with Drs. Palese and García-Sastre to study how the immune system reacted to the 1918 virus and other influenzas. “Immunologists see things from a different angle than virologists,” Dr. Moran explained, “so through this collaboration, we all gained valuable insight into the antagonistic relationship between immunity and infection.”

Drs. Moran, Palese, and García-Sastre looked at the different components that constituted the immune system response to viral infections. A gene in the influenza virus called NS1 blocks the release of interferon, glycoproteins released by the immune system that help fight infection. What the researchers discovered was that NS1 also interferes with dendritic cell stimulation, which in turn, prevents T cells from getting the correct molecular message. “NS1 is crippling the immune response on multiple levels,” Dr. Moran explained. “The T cells are getting a skewed message instead of the correct one, and this all leads to an impaired immune reaction. The immune system cells are confused because NS1

is tinkering with the dendritic cell communication.”

Research will continue to focus on the dendritic cells and their critical role in immune protection. “This is a very, very key group of cells with regard to how the immune system interacts with pathogens,” Dr. Moran said. But Dr. Moran noted that even when scientists do find new molecular pathways to prevent infection from interfering with immunity, viruses will mutate again. “The viruses are always ahead of us, and we are always trying to play catch-up.”

Changing the Landscape

In 1999, Dr. Peter Palese, Professor of Medicine (Infectious Diseases), and his colleague Adolfo García-Sastre, PhD, Professor of Microbiology and Medicine (Infectious Diseases), the Fischberg Chair in Medicine, and Co-Director of the Emerging Pathogens Institute, developed reverse genetics, a technique that enabled them to recreate the influenza virus from recombinant DNA. The work paved the way for the insertion of foreign genes into these and other related viruses, creating any desired mutation and the generation of viruses that can function as better vaccines. “In order to change an RNA virus, we had to go back to DNA, and that’s why it’s referred to as reverse genetics,” said Dr. Palese.

Without reverse genetics, influenza virus vaccine development is a cumbersome and rather inefficient procedure. Although influenza virus vaccines have been available for over sixty years, the length of time required for current methods of production is too long for effective response to a strain as virulent and fast as the ones that have caused pandemics.

Reverse genetics circumvents the previously existing slow methodology for influenza virus vaccine production and allows investigators to custom build a virus to meet their needs. The reverse genetics method is faster and provides a means for altering the virus for markers that allow safer handling. Custom building viruses for vaccines also facilitates greater quality control by reducing genetic variation in production.

The technique also makes practical the idea of developing a library of vaccines against a broad spectrum of avian viruses that have the potential to jump into humans and initiate an influenza virus pandemic. With such a stockpile, each year’s production of vaccines could begin as soon as circulating strains are identified.

PREPARING FOR THE INEVITABLE

Each year the World Health Organization (WHO) works with health agencies in many countries to identify the strain or strains of influenza spreading in human populations. Once isolated, development of a vaccine begins. The slowness of the process is problematic even under the best of conditions, but should a particularly virulent strain such as the one that caused the pandemic of 1918 arise, delays in vaccine production could be catastrophic.

Based on historical patterns, the WHO estimates that influenza pandemics can be expected to occur three to four times per century. A new pandemic is considered inevitable. “The speed of vaccine development will be particularly crucial when the next pandemic arrives,” said Dr. Palese.

THE LESSONS OF 1918

“The 1918 Spanish flu virus continues to help us understand all flu viruses. What molecular mechanism does it utilize to be so virulent, so successful? What is the gene that holds the key to influenza transmission?” asked Dr. García-Sastre.

In 2006, the study of the 1918 virus continued with an analysis of mice infected with the reconstructed virus. The study revealed that although the infection triggered a very strong immune system response, the response failed to protect the animals from severe lung disease and death. Members of the Mount Sinai research team, many of whom had collaborated on the reconstruction of the 1918 influenza virus, wanted to know why the virus, which killed 20 to 40 million people, was so lethal. In the study, researchers infected one group of mice with the 1918 virus influenza and the second group with benign human influenza. The animals infected with the more benign viruses did not develop an immune response that was as strong, and fewer

National Institutes of Health Establishes Center of Excellence for Influenza Research at Mount Sinai

The National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health (NIH), has announced that Mount Sinai School of Medicine is a new Center of Excellence for Influenza Research and Surveillance. NIAID is awarding \$23 million per year for seven years to establish six Centers of Excellence for Influenza Research and

Surveillance around the country. Mount Sinai will help expand NIAID's influenza research as the only recognized Center of Excellence for Influenza Research and Surveillance in New York City.

"We look forward to building upon our past research on the influenza virus, helping the federal government research findings in order to control and weaken the impact of influenza and stop the danger of a deadly influenza pandemic," said Dr. García-Sastre.

The Mount Sinai Center of Excellence for Influenza Research and Surveillance has been named Center for Research in Influenza Pathogenesis (CRIP). Dr. García-Sastre and his team will continue to conduct molecular studies to identify influenza virus genes associated with the development of disease, the adaptability of flu viruses in birds and mammals, and the transmission of flu viruses to different hosts.

Based on historical patterns the WHO estimates that influenza pandemics can be expected to occur three to four times per century, a new pandemic is considered inevitable. "The speed of vaccine development will be particularly crucial when the next pandemic arrives," said Peter Palese.

of the animals died. Cellular genes were individually investigated from lung tissue samples taken from the infected mice, enabling the researchers to trace the immune response to each of the infections.

Christopher F. Basler, PhD, Assistant Professor of Microbiology, who is collaborating with Drs. Palese and García-Sastre, explained some fundamental questions raised by the study. "Did the very strong immune system response contribute to their death or was the immune system too overwhelmed to fight the infection? By understanding the trajectory of this particular infection, we're gaining insight into how to create more targeted therapies for different types of influenza virus strains and infections like avian flu."

BEYOND INFLUENZA

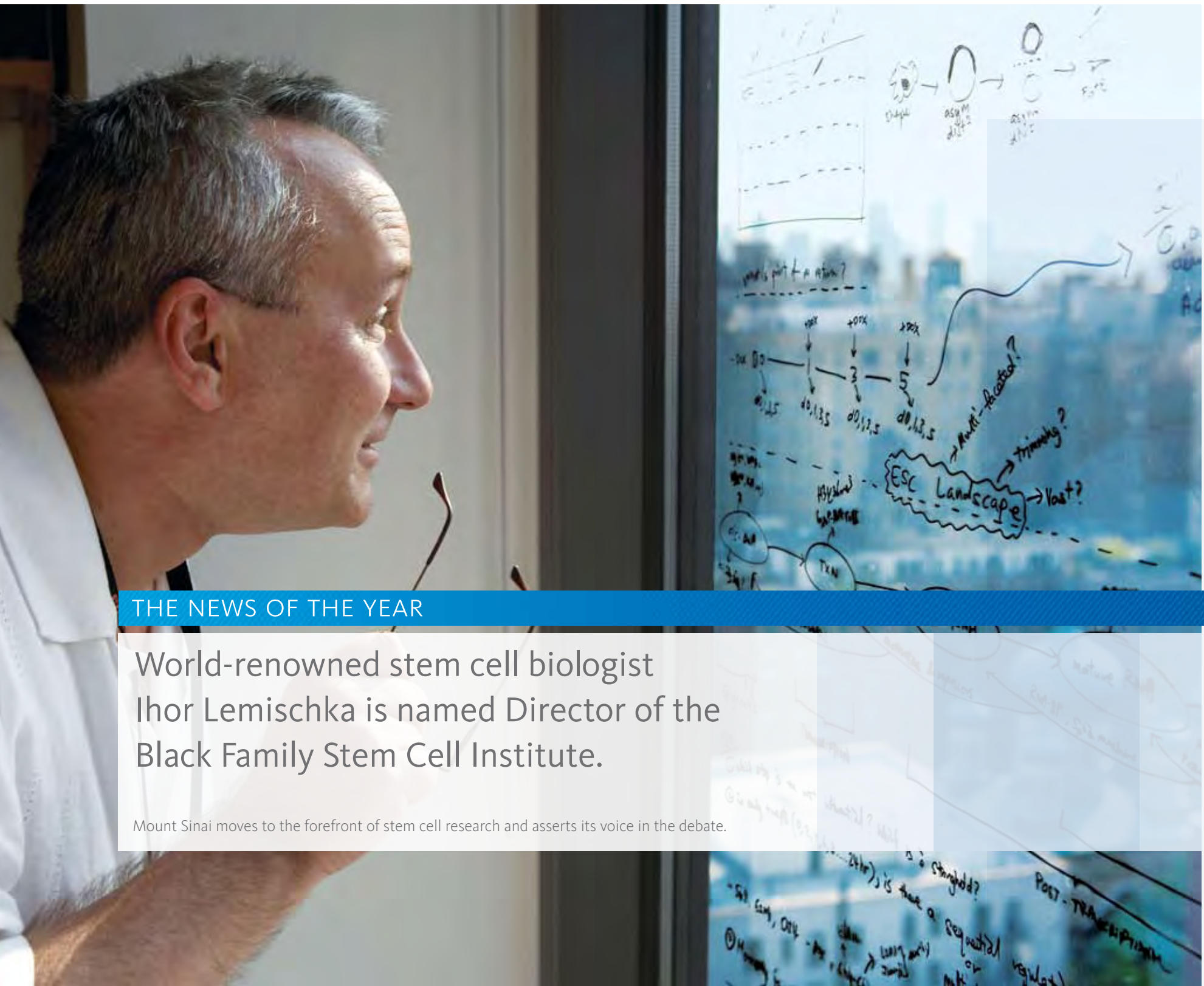
Reverse genetics allows scientists to push into new frontiers and respond to pathogens more rapidly than ever before. Today, Mount Sinai researchers are using this technology looking at influenza, but the bigger picture also includes other emerging pathogens, from avian flu to HIV and to future antibiotic-resistant strains. "At Mount Sinai, our work on the 1918 virus has paved the way for the evaluation of emerging



DR. ADOLFO GARCÍA-SASTRE IN HIS LAB

and as yet unknown pathogens. We are better prepared than ever before, but to some extent we will always have to react rather than anticipate new epidemics. Working in this area is a bit like predicting the stock market. Nature is probably more imaginative than we would like her to be," said Dr. Palese.

"Characterization of the Reconstructed 1918 Spanish Flu Influenza Pandemic Virus"
 Tumpey TM, Basler CF, Aguilar PV, Zeng H, Solórzano A, Swayne DE, Cox NJ, Katz JM, Taubenberger JK, Palese P, García-Sastre A, *Science*, 2005 October 7; 310 (5745): 77-80.



THE NEWS OF THE YEAR

World-renowned stem cell biologist Ihor Lemischka is named Director of the Black Family Stem Cell Institute.

Mount Sinai moves to the forefront of stem cell research and asserts its voice in the debate.

IHOR R. LEMISCHKA, PHD, THE LILLIAN AND HENRY M. STRATTON PROFESSORIAL CHAIR OF GENE AND CELL MEDICINE, READS A DIAGRAM ABOUT HOW STEM CELLS MAY DIFFERENTIATE.

THE WORK OF DECADES

In the 21st century, all of the major clinical breakthroughs will be impacted by stem cell research.

– IHOR R. LEMISCHKA, PHD
Director of the Black Family Stem Cell Institute and the Lillian and Henry M. Stratton Professorial Chair of Gene and Cell Medicine



DR. LEMISCHKA'S LAB
WILL EXPLORE CENTRAL
BIOLOGY QUESTIONS.

At Mount Sinai, clinicians and researchers already have a tradition of collaboration, so culturally and professionally they are attuned to where medicine is headed.

— DR. IHOR R. LEMISCHKA

The Epitome of Translational Medicine

In July 2007, internationally renowned stem cell biologist Dr. Lemischka came to Mount Sinai from Princeton University, where he spent twenty-one years at the forefront of stem cell research. Dr. Lemischka noted, “Mount Sinai epitomizes translational medicine, so this was the ideal setting to pursue stem cell therapy. After over twenty years of working in a laboratory setting, I am particularly excited about working closely with clinicians.”

The arrival of Dr. Lemischka, who will be Director of the Black Family Stem Cell Institute, signals a major leap in stem cell research for Mount Sinai. In the 1980s, Dr. Lemischka was one of the first to find that a single blood-producing stem cell in bone marrow (hematopoietic stem cell) could rebuild all blood cell types in a mouse whose blood cells had been destroyed. Since then, working with both adult and embryonic stem cells, he has studied stem cell behavior and activity and patented techniques to isolate stem cells.

Dr. Lemischka's work has focused on stem cell mechanisms—for example, how embryonic stem cells can develop to form a variety of cell types, including muscle, nerve, and other tissues.

PURSUING THE FUNDAMENTAL QUESTIONS

At Mount Sinai, Dr. Lemischka's lab will continue to explore central biology questions. “For example, what makes a stem cell a stem cell?” he asked. “Why does one stem cell grow into a nerve cell and another into a muscle cell? We call these

‘cell fate decisions.’ How are these decisions made? Is there a way to manipulate these decisions that would benefit patients? That's at the crux of what I'll be doing at Mount Sinai.”

“When we transplant a single stem cell from one mouse into another, that single stem cell is capable of finding its way to the right microenvironment, establishing itself, and initiating communication and growth,” he said. “How does it know to do that? That's what we want to decode.”

New findings by stem cell biologists are influencing the current understanding of disease, including cancer, explained Dr. Lemischka. Recent research suggests that some types of cancers, such as leukemia, may contain a stem cell component that makes it difficult to eradicate the cancer.

THE BLACK FAMILY STEM CELL INSTITUTE: A MODEL FOR COLLABORATION AND LEADERSHIP

“I believe stem cells are going to play a part in virtually all of the major medical breakthroughs of the twenty-first century, and I see no reason why the Black Family Stem Cell Institute can't lead the way in stem cell research, nationally and internationally,” said Dr. Lemischka. “At Mount Sinai, clinicians and researchers already have a tradition of collaboration, so culturally and professionally they are attuned to where medicine is headed.”

Founded in 2005 with a generous gift from Leon D. Black, the Institute encourages interdisciplinary research projects between basic and applied researchers. For example, Mount Sinai scientists are studying how implants of stem



DR. IHOR LEMISCHKA WITH LAB ASSISTANTS XONIA CARVAJAL VERGARA (LEFT) AND ANA SEVILLA HERNANDEZ (RIGHT)

cells grow when injected into live animals. As part of this effort, investigators from the Cardiovascular Research Institute and the Cardiovascular Imaging Center are learning how to phototag stem cells so that they can be monitored in these animals.

In another area, Mount Sinai faculty are studying how to treat astrocytoma, a type of brain tumor. Using the observation that certain types of stem cells, when injected into animals, will migrate to and remain in astrocytomas, researchers are devising ways to make these astrocytoma-seeking stem cells into killer cells that destroy the tumors.

The liver transplantation group, which treats people with fibrotic livers, is working to develop liver stem cell therapy that could supplant the use of donor livers. This would greatly relieve the liver transplant service, which depends on unpredictable supplies of donor organs to treat a need that is expected to grow with the increasing incidence of hepatitis C.

Stem cell research is applicable to virtually every area of research since most types of tissues do have stem cells. As scientists explore how to harness stem cells in the heart, the brain, and so many other areas, Mount Sinai's institute structure makes collaboration a fundamental part of the investigative process.

HOW FAR CAN WE GO? HOW FAST CAN WE MOVE?

The promise of stem cells is virtually limitless, but developing new therapies is also dependent on a fundamental understanding of particular conditions and how they affect patients at every stage of disease progression. Again, collaboration is key. "Medical science understands Parkinson's well enough to suggest how stem cells could potentially be utilized, so we're much closer to being able to develop

therapies. On the other hand, we don't yet understand nearly enough about the mechanisms of Alzheimer's disease to accomplish anything meaningful with stem cells. But that could change very rapidly if clinicians and researchers help each other better understand how the disease works. We'll make the best progress for our patients if we are both optimistic and strategic about how we focus our efforts. Part of being a leader is helping set realistic goals for the medical community and for society in general. And then always pushing further once that goal is attained," said Dr. Lemischka.

NEW YORK BECOMES A NATIONAL LEADER

This year, New York State has made a substantial commitment to funding stem cell research. This effort joins states such as California, New Jersey, and others that have also made commitments to support stem cell research.

As Dr. Lemischka explained, "This gives us tremendous additional resources. It also gives us as scientists the added responsibility to make sure that our lawmakers have accurate information about stem cell research. We must ensure that the inevitable debate over stem cells is conducted on a higher level than it has been in the past. And we must also better educate the general public about the real promise that stem cells hold for our future as a society. We need to be as enthusiastic and skilled about explaining our work as we are about doing it."



THE NEWS OF THE YEAR

On September 5, 2006, Mount Sinai researchers released findings from the World Trade Center Worker and Volunteer Medical Screening Program.

Today's findings lay out a more complete picture of what has happened to the men and women who answered the call.
— Senator Hillary Rodham Clinton, at the press conference at Mount Sinai

THE WORK OF DECADES

I am always mindful of the axiom of my predecessor at Mount Sinai, the late Professor Irving J. Selikoff, the father of occupational medicine in the United States, who said that “statistics are people with the tears wiped off.”

— PHILIP J. LANDRIGAN, MD
The Ethel H. Wise Professor and Chair of Community and Preventive Medicine, Professor of Pediatrics

(LEFT TO RIGHT) ROBIN HERBERT, MD, PHILIP J. LANDRIGAN, MD, AND JACQUELINE MOLINE, MD, REVIEW AN X-RAY OF THE LUNGS.

Our 9/11 work lies at the intersection of Mount Sinai's expertise in environmental medicine and our fundamental commitment to serve the community.

— DR. PHILIP J. LANDRIGAN

Co-founder of the Centers for Disease Control's National Center for Environmental Health

Starting in the 1970s, Dr. Landrigan made the world aware of the harmful health effects of asbestos, pesticides, lead, and PCBs, long before anyone thought them toxic. He was a co-founder of the Center for Disease Control's National Center for Environmental Health. His research helped catalyze the U.S. government's phase-out of lead from gasoline and paint. He chaired a National Academy of Sciences Committee on Pesticides and Children's Health, whose report

secured passage of the major federal pesticide law in the United States, the Food Quality Protection Act of 1996, the first federal environmental law to contain specific protections for infants and children. His work as Senior Adviser to the Environmental Protection Agency was instrumental in helping to establish the EPA's Office of Children's Health Protection. More recently, many agencies — notably the United Nations World Health Organization, the EPA, and the CDC — have consistently turned to Dr. Landrigan for his expertise.

Standing Up for Those Who Stood Up for the Nation

The roots of the World Trade Center Worker and Volunteer Medical Screening Program go back to 1986. At that time, Dr. Landrigan, who had just arrived at Mount Sinai from the Centers for Disease Control and Prevention, saw critical need to establish a clinical center of excellence in occupational medicine in New York City. He persuaded the New York State Legislature to appropriate the necessary funding, and he and his colleagues launched the Irving J. Selikoff Center in Occupational and Environmental Medicine. The World Trade Center medical programs exist today because Dr. Landrigan and his team had the foresight to build this unique base.

Early in the morning of September 13, 2001, less than forty-eight hours after the attacks on the World Trade Center, Dr. Landrigan and his team in the Selikoff Center began organizing the occupational and environmental medicine response to 9/11. They tracked occupational exposures at Ground Zero, and they tried to anticipate the likely patterns of disease in those who gave so heroically to the World Trade Center. They created a comprehensive medical monitoring program to assess both physical and mental health. Six years after the disaster, this program has helped thousands of World Trade Center first responders and site cleanup workers, and scientific findings from the program are helping lawmakers in Washington on behalf of these brave men and women, many of whom will need ongoing expert medical care.

The program's landmark study, initiated in 2003 with philanthropic funding, has provided over 21,000 medical and social work services to more than 15,000 WTC responders with persistent illnesses. The study showed that about 70 percent of responders suffer from respiratory problems. These responders have also had upper

respiratory illnesses (84 percent), such as sinusitis, laryngitis, and vocal cord dysfunction; lower respiratory disorders (47 percent), such as asthma and "World Trade Center cough"; psychological disorders (37 percent), such as post-traumatic stress disorder and chronic depression; and musculoskeletal problems (31 percent), often from injuries that occurred while working on the smoking pile at Ground Zero.

These results highlight the continuing need for both health monitoring and treatment programs for WTC responders. As Dr. Landrigan explained, "Our 9/11 work lies at the intersection of Mount Sinai's expertise in environmental medicine and our fundamental commitment to serve the community."

And the work will continue for years to come. "We will be monitoring our heroes for the foreseeable future," said Dr. Landrigan. "We do not yet know whether these individuals are at risk for certain types of cancers or other illnesses. We will need to do a daily scanning of the horizon to see if anything new is arising. We cannot predict what will happen to these people because there is no precedent for this. But we are watching over all of them, every single one."

LEADING INVESTIGATOR OF THE NATIONAL CHILDREN'S STUDY

Dr. Landrigan, who is the Director of the Mount Sinai Center for Children's Health and the Environment, is also leading the landmark National Children's Study, the largest long-term study of children's health ever conducted in our country. The study's goal is to produce a scientific blueprint to guide treatment and prevention of the major diseases of American children—asthma, autism, attention deficit disorder, birth defects, cancer, and diabetes. Although the study is ongoing, it has already produced very tangible results.

The Role of Epidemiology in Environmental Protection

As Director of Mount Sinai's new Institute for Epidemiology, Biostatistics, and Prevention, David A. Savitz, PhD, is working toward fully integrating epidemiology into the fabric of clinical research at Mount Sinai.

Under Dr. Savitz's leadership, epidemiology is a tool that can be used to bridge the basic sciences and genetics with applications for real people in everyday life. Dr. Savitz is also the Charles W. Bluhdorn Professor of International Community Medicine, and Professor of Community and Preventive Medicine and

of Obstetrics, Gynecology, and Reproductive Science.

A dedicated and award-winning scientist, Dr. Savitz is at the forefront of a burgeoning interest in translational research and disease prevention that calls for an increased epidemiological focus. His research focuses on reproductive, environmental, and cancer epidemiology. Dr. Savitz translates complex epidemiological data and makes them applicable to everyday life. His studies have examined magnetic fields and their role in cancer, the impact that disinfection by-products in drinking water have on fetal health, and the relation between air pollution and preterm birth. One of Dr. Savitz's areas of

expertise is the study of environmental factors, including tobacco and cocaine use, exercise, and diet, and their influences on premature childbirth.

Dr. Savitz's expertise in environmental, maternal, and fetal health is nationally renowned. He is a former President of the Society for Pediatric and Perinatal Epidemiologic Research and the Society for Epidemiologic Research. Before joining the Mount Sinai faculty two years ago, Dr. Savitz was the Chair of the Department of Epidemiology at the University of North Carolina School of Public Health in Chapel Hill.



(LEFT TO RIGHT) DR. PHILIP J. LANDRIGAN, DR. ROBIN HERBERT, AND DR. JACQUELINE MOLINE DISCUSS THEIR RESEARCH.

“The finding we came up with two years ago, that prenatal exposure to certain pesticides causes small head circumference in newborn infants, is a prescription for action. Small head circumference reflects delayed brain growth. That’s exactly the kind of thing we anticipate that we’ll be finding throughout the National Children’s Study. And, as soon as we find it, we’ll move on to doing all that we can. For example, as soon as we observed the impacts of pesticides on brain development, we worked closely with the EPA to limit residential exposures to two of the most toxic materials—chlorpyrifos and diazinon. And as the study proceeds, we’ll give advice to patients, we’ll give advice to city health departments, we’ll write policy, we’ll change the way in which we medicate kids with asthma, whatever is appropriate,” said Dr. Landrigan.

“There’s no question that in any of these big studies, such as the World Trade Center Medical Program, the National Children’s Study, the asthma studies, or the obesity studies that we’ve done for the National Institute for Child Health and Human Development, that important new findings will emerge at every step as we proceed. In the first few years, for example, I expect that we will gain new knowledge about the preventable causes of pregnancy loss and birth defects. A few years later, we will generate a wealth of information about the environmental causes and the prevention of learning disabilities. And in the years after that we will be learning what exposures cause cancer, diabetes, and schizophrenia. In other words, we won’t have to wait twenty-one years in the National Children’s Study to develop valuable leads to treatment and prevention. The gains for human health will be incalculable.”

“The National Children’s Study is truly the most ambitious study of child health that’s ever been proposed for this county,” explained Dr. Landrigan. “It is a legacy from our generation to the generations who will follow. And Mount Sinai is in the forefront.”

Congressional and Other Testimony

Robin Herbert, MD

Presented testimony before the US House of Representatives Energy and Commerce Committee Health Subcommittee, “Answering the Call: Medical Monitoring and Treatment of 9/11 Health Effects,” September 18, 2007.

Presented testimony before the Senate Health, Education, Labor, and Pensions Committee, “Hearing on the Long-Term Health Impacts from September 11: A Review of Treatment, Diagnosis, and Monitoring Efforts,” March 21, 2007.

Presented testimony before the Congressional Subcommittee on Government Management, Organization, and Procurement, “Hearing on 9/11 Health Effects: Federal Medical Monitoring and Treatment of Residents and Responders,” February 28, 2007.

Presented testimony at the Food and Drug Administration’s Center for Drug Evaluation and Research Seminar Program on the public health response to the WTC disaster, February 7, 2007.

Presented testimony before the Congressional Subcommittee on National Security, Emerging Threats, and International Relations, “Progress Since 9/11: Protecting Public Health and Safety of the Responders and Residents,” September 8, 2006.

Philip J. Landrigan, MD

Presented testimony before the US House of Representatives Homeland Security Committee, “Protecting the Protectors: First Responder Health Issues in the Wake of Catastrophic Events,” September 20, 2007.

Presented testimony before the US House of Representatives Energy and Commerce Committee Health Subcommittee, “Answering the Call, Medical Monitoring and Treatment of 9/11 Health Effects,” September 18, 2007.

Presented testimony before the US House of Representatives Labor and Education Committee, “Why Weren’t 9/11 Recovery Workers Protected at the World Trade Center?” September 12, 2007.

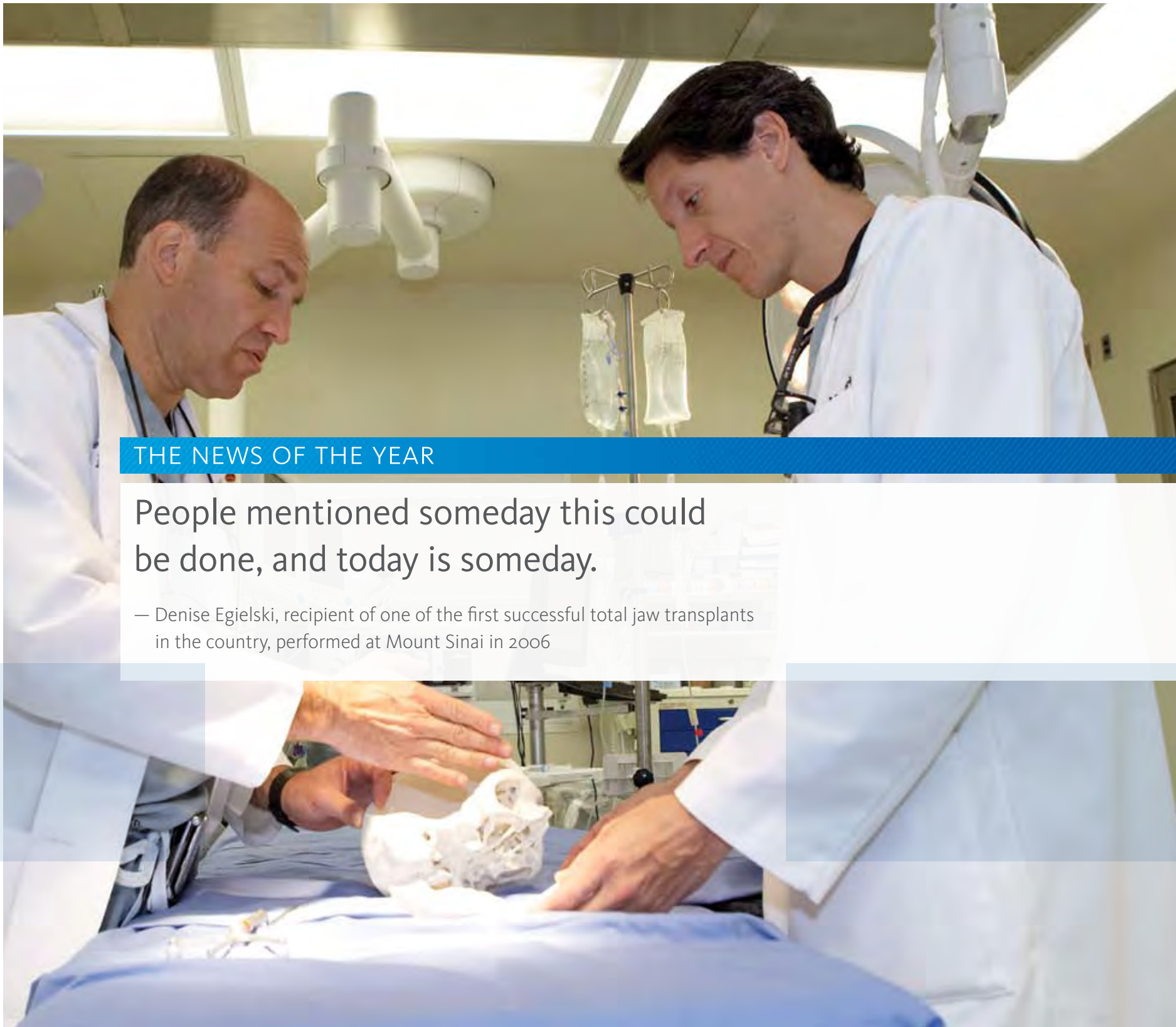
Presented testimony before the New York State Legislature 2007–08 Joint Budget Hearing on Environmental Conservation, “The Need for Children’s Environmental Health Centers of Excellence in New York State,” March 5, 2007.

Stephen Levin, MD

Presented testimony before the Congressional Subcommittee on National Security, Emerging Threats, and International Relations, “Assessing September 11th Health Effects: What Should Be Done?” February 28, 2006.

Leo Trasande, MD, MPP

Presented testimony before the US Senate Committee on Environment and Public Works, “The Superfund Program and the Health of Our Nation’s Children,” June 15, 2006.



THE NEWS OF THE YEAR THE WORK OF DECADES

People mentioned someday this could be done, and today is someday.

— Denise Egielski, recipient of one of the first successful total jaw transplants in the country, performed at Mount Sinai in 2006

For Dr. Eric Genden and his colleagues, the words “nothing more can be done” represent the ultimate challenge.

JOSHUA BEDERSON, MD, DIRECTOR OF THE DEPARTMENT OF OTOLARYNGOLOGY’S SKULL-BASE AND CEREBROVASCULAR SURGERY PROGRAM, AND PROFESSOR OF NEUROSURGERY (LEFT), AND ERIC GENDEN, MD, CHAIR AND PROFESSOR OF THE DEPARTMENT OF OTOLARYNGOLOGY AND CHIEF OF THE DIVISION OF HEAD AND NECK ONCOLOGY (RIGHT), WITH A MODEL OF A SKULL.

A THREE-DIMENSIONAL CAT SCAN SHOWS WHAT THE TRANSPLANTED MANDIBLE WOULD LOOK LIKE.



The creative approaches to treatment have been the result of collaboration. I'm most proud of that.

— DR. ERIC GENDEN

Tackling the Impossible Cases

Patients come to Dr. Eric Genden when they are told that nothing more can be done. Denise Egielski's case was daunting and complex; it was seen as beyond the capabilities of modern medicine. When she was two years old, the growth of an aggressive tumor led to the surgical removal of Denise Egielski's entire jaw.

For more than fifty years, Mrs. Egielski ate with difficulty. When lying down, the soft tissue around her lower face and neck, as well as her tongue, would collapse onto itself, causing her to choke. She developed sleep apnea and was at risk for a heart attack or stroke. Because of a blood vessel abnormality, Mrs. Egielski was not a candidate for conventional reconstructive techniques.

Dr. Genden, Chair and Professor of the Department of Otolaryngology, and Chief of the Division of Head and Neck Oncology, and Alex Greenberg, DDS, Clinical Instructor in Dentistry and a maxillofacial surgeon, solved the problem by creating an implant from the jaw bone of a deceased 15-year-old boy. Bone marrow from Mrs. Egielski's hip was injected into the donor bone and then the jaw was grafted into a muscle in her back, where it remained for eight months.

Dr. Greenberg explained, "This allowed the donor jaw bone to grow its own blood vessels, and by adding the patient's own bone marrow we were able to prevent the need for immunosuppressive drugs." During the final procedure, the jaw was removed from Mrs. Egielski's shoulder and attached to her lower skull. Within weeks she was leading a normal life.

"Managing Denise's clinical dilemma with a new and innovative approach exemplifies potential benefits of translational research. We've spent fifteen years

studying transplantation immunology, working on techniques to obviate the need for long-term immunosuppression. The concepts were conceived on paper, tested in the laboratory, and finally brought to the bedside. The results are that we are able to deceive the body into believing that the transplanted tissue is the patient's own tissue. At Mount Sinai, we have taken the lead in this area of head and neck transplantation and our orthopedic surgeons are already looking at bone transplants for the management of bony disorders of the spine," said Dr. Genden.

DEVELOPING NEW TECHNIQUES BASED ON COLLABORATION

Since the Head and Neck Cancer Center team was formed in 2005, Dr. Genden and his colleagues not only completed the first total jaw transplant, they performed the first composite tracheal transplants and established an endoscopic and minimally invasive surgical team.

"The Head and Neck Cancer Center has brought together nineteen different specialists from eleven different departments. The creative approaches to treatment have been the result of collaboration. I'm most proud of that," said Dr. Genden. Working with the department of neurosurgery, the team now is able to remove skull-base tumors and brain tumors through the nose with no external incisions, brain retraction, or craniotomy. This less-invasive approach means that patients recover more quickly, with fewer complications.

"We use a four-handed technique, with both surgeons operating at the same time through both nostrils," said Joshua Bederson, MD, Director of the Department's Skull Base and Cerebrovascular Surgery Program and Professor of Neurosurgery. This is due, in part, to new surgical implementation, optics, video display, and an evolving knowledge of endoscopic skull-based anatomy. "In addition," continued

DR. JOSHUA BEDERSON (LEFT) AND DR. ERIC GENDEN (RIGHT) DISCUSS ROBOTIC SURGERY.

Dr. Bederson, “we have learned how to work in the same operative field at the same time. It’s rare to find surgeons from different specialties who are able to work simultaneously like we do.”

The four-handed technique means that Dr. Bederson works through one side of the nose while Dr. Genden works through the other side. Working in tandem with four hands, the surgeons are able to carefully remove tumors of the skull base without ever creating an external incision.

“In ENT, we have been operating through the nose for years. Neurosurgeons have been removing tumors at the base of the skull for years. This is a combined approach in its richest form—and is emblematic of the multidisciplinary Head and Neck Cancer Center. We are taking disciplines that have worked in parallel and bringing them together for the benefit of our patients,” said Dr. Genden.

USING ROBOTICS IN CANCER SURGERY

Dr. Genden points to the increased use of robotics as key to the future of cancer surgery. For the first time, minimally invasive procedures are now not only meeting but surpassing the effectiveness of former and current “gold standard” treatments. Just one year ago, removing tumors from the voice box would have meant using morbid and risky surgical approaches. Now this surgery is accomplished through the mouth with the aid of a robot. The patient requires no external incisions and commonly returns home—unscarred—in two days instead of two weeks.

“I think this is just the beginning—as the multidisciplinary Cancer Center grows, the applications for robotics, stem cells and tissue engineering, and transplantation will undoubtedly grow. It’s no longer enough to just to cure the illness; patients want

quality of life. They want to function, they want to speak, they want to eat, and they want to be cosmetically unscarred. All these techniques have tremendous potential to help erase the impact of cancer on patients’ lives,” added Dr. Genden.





THE NEWS OF THE YEAR

Mount Sinai Heart launches a comprehensive global battle against heart disease.

In May 2006, Mount Sinai announced the creation of Mount Sinai Heart, a new approach to cardiac care that combines all of the Medical Center's world-class resources—including internationally renowned physicians, scientists, and educators; clinical services; leading-edge research; and an outstanding cardiology training program—in one integrated entity.

VALENTIN FUSTER, MD, PHD, DIRECTOR OF MOUNT SINAI HEART

THE WORK OF DECADES

The group we have assembled will dramatically change the way medical science diagnoses, treats, and even thinks about heart disease.

— VALENTIN FUSTER, MD, PHD
Director of Mount Sinai Heart, Director of the Zena and Michael A. Wiener Cardiovascular Institute and the Marie-Josée and Henry R. Kravis Center for Cardiovascular Health, and the Richard Gorlin, MD/Heart Research Foundation Professor

ROGER HAJJAR, MD,
TRACKS THE BEHAVIOR
OF STEM CELLS
INJECTED INTO HEART
MUSCLE CELLS.



From tissue repair to the eradication of heart disease throughout the world, Mount Sinai Heart is the future.

— KENNETH L. DAVIS, MD
President and Chief Executive Officer, The Mount Sinai Medical Center

Fighting heart disease on all fronts

Valentin Fuster has spent his career shaping Mount Sinai's world-class reputation in both research and clinical care, and he has recruited an unparalleled group of experts to work alongside him. "In the fight against the world's leading cause of death, the free exchange of ideas and information fosters great science. And I believe our team of researchers and clinicians is now the best in the world," said Dr. Fuster.

In addition to his Mount Sinai responsibilities—Director of the Zena and Michael A. Wiener Cardiovascular Institute and the Marie-Josée and Henry R. Kravis Center for Cardiovascular Health—Dr. Fuster is also the Richard Gorlin, MD/Heart Research Foundation Professor, Past President of the World Heart Federation, Past President of the American Heart Association, and the President for Science of the National Centre for Cardiovascular Research (CNIC), the equivalent of the National Heart, Lung, and Blood Institute (NHLBI), in Madrid, Spain.

A WORLD-CLASS TEAM

Samin K. Sharma, MD, is the Director of the Cardiac Catheterization Laboratory, Director of Interventional Cardiology, Co-Director of the Zena and Michael A. Wiener Cardiovascular Institute, and the Zena and Michael A. Wiener Professor of Medicine. Under Dr. Sharma's leadership, the Cardiac Catheterization Laboratory has achieved the lowest mortality rate in New York State for angioplasty procedures, according to a report from the state's Department of Health. In 2006 Dr. Sharma received the Governor's Award for his outstanding achievement in the area of interventional cardiology, and later that year, he celebrated his 5,000th catheterization procedure.

With the advent of Mount Sinai Heart, the pace of recruitment has increased dramatically. Recent arrivals include **Mario Garcia, MD**, Director of Non-Invasive Cardiology and Professor of Radiology and Medicine (Cardiology), a former director of the Cleveland Clinic Foundation. Before leading Mount Sinai's cardiac imaging center, Dr. Garcia worked with NASA and the National Space Biomedical Research Institute on the use of echocardiography in manned space flight. Dr. Garcia also worked with the US Department of Defense on the development of an ultrasound probe needle that reduces fluid in battle-related wounds. He is currently creating a new fellowship program in cardiovascular imaging. The development of a multidisciplinary effort with two nationally prominent colleagues, **Martin E. Goldman, MD**, Director of Echocardiography and Professor of Medicine (Cardiology), and **Milena Henzlova, MD**, Director of Nuclear Cardiology and Associate Professor of Medicine (Cardiology), makes this center one of the most prominent worldwide.

Roger Hajjar, MD, came to Mount Sinai from Harvard, where he pioneered in the study of gene therapy for congestive heart failure. He is currently tracking the behavior of stem cells injected into heart muscle cells. Dr. Hajjar, the Arthur and Janet C. Ross Professor of Medicine (Cardiology), is also the Director of the new Cardiovascular Research Center. The Center's mission is to focus on the molecular mechanisms of human cardiovascular disease and to translate basic findings to novel therapies and diagnostics, as well as to mentor MD and PhD trainees committed to a career in academic cardiovascular research. At the Center, he currently oversees the work of six principal investigators and fifty trainees, including graduate students, postdoctoral fellows, and technicians.

Bruce Gelb, MD, is the Director of the new Center for Molecular Cardiology, the Arthur J. and Nellie Z. Cohen Professor of Pediatrics, and Professor of Genetics and Genomic Sciences. His work has been nationally and internationally recognized with

A Destination for Interventional Cardiology

Mount Sinai's Catheterization Laboratory is one of about a handful around the country that performs more than 5,000 interventional cardiology procedures each year. The Catheterization Lab is led by Samin K. Sharma, MD, who performs over 1,500 complex coronary interventions annually, one of the highest rates in the country, while achieving an extremely low complication rate. According to New York State Department of Health reports, he has the highest angioplasty success rate (lowest mortality, less than 0.1 percent) for any interventional cardiologist in the state since 1994.

Under Dr. Sharma's leadership, Mount Sinai Heart has become one of the best and busiest centers in New York, providing excellent care for all types of simple and complex high-risk heart patients. In addition to coronary interventions, Dr. Sharma specializes in the non-surgical treatment of mitral and aortic stenosis (balloon valvuloplasty).

"Patients are referred to us after they have tried all medications and failed," explained Dr. Sharma. "We usually treat patients who have significant blockage, 90 percent or more. We have also educated our affiliate and referring physicians that patients who have symptoms that continue after medication has been tried should be referred for catheterization."

Intentionally, the Catheterization Laboratory has a small number of full-time physicians who perform a high volume of procedures. "Each faculty member does about five hundred interventions a year," Dr. Sharma explained. "Studies have shown that the volume drives quality. It makes us better and reduces complications."



SAMIN SHARMA, MD, THE ZENA AND MICHAEL A. WIENER PROFESSOR OF MEDICINE, IN THE CARDIAC CATHETERIZATION LABORATORY.

distinguished research awards. Dr. Gelb focuses on the development of the heart and the genes that lead to congenital heart defects. Dr. Gelb and his colleagues have already achieved several scientific accomplishments in this area, including the discovery of two genes for Noonan syndrome (a condition in which the heart and other major organs do not function properly), and the discovery of a gene that causes patent ductus arteriosus (a common heart defect in which a blood vessel that allows blood to bypass the lungs in the womb fails to close after birth).

David Adams, MD, the Marie-Josée and Henry R. Kravis Professor and Chair of the Department of Cardiothoracic Surgery, is internationally regarded for his expertise in mitral valve surgery. Dr. Adams has devoted his career to the study of ischemic mitral regurgitation, outcomes related to mitral valve repair, and novel mitral valve repair strategies.

Michael L. Marin, MD, the Dr. Julius H. Jacobson II Chair in Vascular Surgery and Chair of the Department of Surgery, is a world leader in the minimally invasive treatment of aortic aneurysm disease. He was the first surgeon in the United States to perform minimally invasive aortic aneurysm surgery. Dr. Marin has written extensively on surgical techniques, endovascular surgery, and intimal hyperplasia, the thickening of the inner layer of an artery.

Ira Parness, MD, trained at Children's Hospital Boston and Harvard Medical School, is the Director of the Division of Pediatric Cardiology and Professor of Pediatrics. Dr. Parness works closely with the Cardiothoracic Surgery team in diagnosing and treating the most difficult and complex cardiac conditions in infants and children. His areas of expertise include echocardiography, fetal cardiology, complex congenital heart disease, and cardiomyopathy. Dr. Parness's work in pediatric echocardiography has been highly recognized by the American Society of Echocardiography.

Going Straight to Root Causes and New Treatments

HEART AND ELECTRICAL FAILURE

This is one of the first three centers in the country where cardiac failure treatment and cardiac arrhythmia treatment are integrated on both the research and clinical levels. The cardiac failure section, led by **Sean P. Pinney, MD**, Director of the Advanced Heart Failure and Cardiac Transplant Program and the Pulmonary Hypertension Program, and Assistant Professor of Medicine (Cardiology), and **Jill Kalman, MD**, Director of the Cardiomyopathy Program and Associate Professor of Medicine (Cardiology), both work closely with **Davendra Mehta, MD, PhD**, Associate Professor of Medicine (Cardiology), and his group in electrophysiology, and with the cardiac transplantation program.

VASCULAR BIOLOGY

The leading killer in the developed world is atherosclerosis, and vascular biology research is the key that will unlock the cure. Mount Sinai is home to three of the most prominent researchers in this field: **Zahi A. Fayad, PhD**, Director of the Translational and Molecular Imaging Institute, of the Eva and Morris Feld Imaging Science Laboratories, and of Cardiovascular Imaging Research, and Professor of Radiology and Medicine (Cardiology), is the leading researcher in molecular magnetic resonance imaging. In early 2007, Dr. Fayad and colleagues discovered the enormous potential to predict and prevent adverse cardiac events by using contrast-enhanced CT imaging, a non-invasive technique that effectively pinpoints dangerous arterial plaque.



Juan J. Badimon, PhD, Professor of Medicine (Cardiology), is internationally recognized for his work on the role of lipids and thrombosis in cardiovascular disease. Specifically, he was the first to demonstrate in experimental models the effect of HDL cholesterol in the removal of LDL cholesterol from the vessel wall, a discovery that has led to a better understanding of lipid metabolism and of such pharmacological potential for atherosclerotic plaque regression in humans. Furthermore, his animal models of experimental atherothrombotic disease have led to new discoveries regarding its nature.

Jeffrey W. Olin, DO, Professor of Medicine (Cardiology), a world-renowned clinical investigator in the field of vascular medicine, has been the lead investigator in many clinical trials, including trials of therapeutic angiogenesis. He currently serves as President of the Society for Vascular Medicine and Biology. He edited and wrote one of the most respected books on vascular disease, *Peripheral Vascular Diseases*.

CLINICAL TRIALS AND IMAGING RESEARCH

This research section is the first of its kind in the world. Clinical trials are led by **Michael Farkouh, MD**, Associate Professor of Medicine, who trained at both the Mayo Clinic and McMaster University. The imaging aspect of this research is under the auspices of Drs. Fayad, Fuster, and Garcia. “We are using the latest imaging technology to follow the progression or regression of atherosclerosis. Using these multimodal imaging strategies, we are able to evaluate the effect of various drug therapies and identify those that hold the most promise for preventing clinical events,” said Dr. Farkouh.

Within the context of clinical trials, **Jonathan L. Halperin, MD**, the Robert and Harriet Heilbrunn Professor of Medicine (Cardiology), is an internationally

At every point, from basic research through clinical care and surgical intervention, Mount Sinai Heart has assembled unprecedented expertise under one roof. Our patients reap the benefits from the moment they walk through the door.

— VALENTIN FUSTER, MD, PHD

respected trialist. He was the principal cardiologist responsible for the design and execution of the Stroke Prevention in Atrial Fibrillation clinical trials, which received over \$25 million in grant support from the National Institutes of Health. These multicenter studies, which involved 3,600 patients and over 100 investigators, helped develop antithrombotic strategies to prevent stroke among the estimated 2.5 million Americans with atrial fibrillation. Subsequently, he directed the SPORTIF (Stroke Prevention using an Oral Thrombin Inhibitor in Atrial Fibrillation) clinical trials, which evaluated the first oral direct thrombin inhibitor for prevention of stroke in patients with atrial fibrillation. These international trials, involving over 7,000 patients randomized at over 700 clinical centers, in 25 nations, represented the most aggressive effort ever mounted against embolic stroke and tested the first new oral anticoagulant in over half a century. He is currently engaged in a number of clinical trials aimed at developing improved therapeutic agents for prevention of ischemic events in an array of cardiovascular disease states.

“At every point, from basic research through clinical care and surgical intervention, Mount Sinai Heart has assembled unprecedented expertise under one roof. Our patients reap the benefits from the moment they walk through the door,” said Dr. Fuster.

Pioneering Global Projects

Today, Mount Sinai is also involved in a variety of clinical programs and trials throughout the country and the world. Here are just some of the efforts that are emblematic of Dr. Fuster’s vision and the expertise of his team.

ZAHY FAYAD, PHD, WANTS TO USE CT IMAGING TO PREDICT CARDIAC EVENTS.



The Program for Diagnostic and Preventive Medicine

Mount Sinai's Program for Diagnostic and Preventive Medicine provides the most complete and accurate general health assessment available in the New York metropolitan area. Patients who participate in this full-day, non-invasive diagnostic screening undergo a comprehensive medical examination by one of Mount Sinai's best-qualified senior physicians. This examination is complemented by specialized consultations, examinations, and state-of-the-art

imaging technology to provide detailed assessments of cardiovascular, pulmonary, gastrointestinal, endocrinological, gynecological, ophthalmic, audiological, neuromuscular, and dermatological status. The program can be customized for each individual to meet specific needs, both medical and personal. At the end of the day, patients meet with the physician to review the results of all tests and consultations and discuss medical issues that have been identified. Afterward, patients receive a dossier containing all the test results, images, reports, and recommendations from

their comprehensive evaluation to review with their personal physician.

"This program represents a channel of access to some of the best services at Mount Sinai," said program director Dr. Jonathan L. Halperin. "Not only is it the most comprehensive, single-day health assessment available anywhere, it's right here in New York City."

The FREEDOM Trial

In 2004, Dr. Fuster was awarded a \$25 million grant from the National Heart, Lung, and Blood Institute of the National Institutes of Health to study patients with diabetes and multi-vessel coronary disease at Mount Sinai School of Medicine. The global multicenter study is called the Future Revascularization Evaluation in Patients with Diabetes Mellitus: Optimal Management of Multivessel Disease (FREEDOM) Trial and is expected to be the definitive study to determine the best clinical practice for this patient population: balloon angioplasty with drug-eluting stenting or coronary artery bypass graft surgery. The FREEDOM Trial will encourage and educate cardiologists to become more aware of diabetes so that they can take a more comprehensive approach to the diagnosis and treatment of their patients, explained Dr. Fuster. "Too often we think of patients with regard to the organs in which we have expertise. These diseases are systemic and this study reinforces that fact in a very fundamental and influential way."

An ancillary NIH FREEDOM Trial, an imaging pilot, led by Dr. Fayad, PhD, Professor of Medicine (Cardiology and Radiology), is ongoing at Mount Sinai using multimodality magnetic resonance imaging, PET, and CT scanning technologies, for the non-invasive assessment of atherosclerosis plaque composition and molecular activity.

The High Risk Plaque Initiative

Can non-invasive bioimaging with blood markers predict a heart attack or stroke before it occurs? Under Dr. Fuster's leadership, for the first time ever, mobile imaging units will be used to screen 7,300 patients in three US cities—Chicago, Louisville, and Miami. All patients must have at least one risk factor for heart disease: high blood pressure, obesity, diabetes, a family history of heart disease, or smoking. Six thousand of these patients will be screened with only ultrasound and standard CT

scans. Two thousand patients will undergo MRI and 200 patients will receive FDG-PET/CT scans. The remaining 1,300 patients will serve as the control group and not undergo imaging.

"Over the next three to four years, we will be looking to see if we can predict cardiovascular events in patients. Mount Sinai is leveraging its vast imaging and diagnostic expertise across a very large at-risk population. Until now, the data on prevention and screening have been lacking, but we're going out into the field to change that," said Dr. Fayad.

The Grenada Heart Project

The island of Grenada is at a pivotal point in the fight against heart disease. Is it possible to stem a developing epidemic of cardiovascular disease and make Grenada a model for other countries to follow as they develop education and treatment programs? Because Grenada is rapidly becoming more industrialized, behaviors are changing. Fewer people get exercise from walking and more people are eating foods that contribute to the development of atherosclerosis. Dr. Fuster at Mount Sinai, working in partnership with the World Heart Federation, is surveying 10,000 people in Grenada to profile their risk factors and thus set the stage for a population-based intervention. "We believe we have the potential to influence an entire nation at risk and create a model that can be adopted throughout the developing world," said Dr. Farkouh, who directs the clinical coordination for the project.

Sesame Street Education Project

Because no one is too young to develop healthy eating and exercise habits, Dr. Fuster is working with the producers of *Sesame Street* to influence young viewers and develop model education programs. "Big Bird and his colleagues are among our strongest allies in creating a new generation of healthier Americans. And we cannot discount the influence that children have over the behavior of their parents," said Dr. Fuster.

Surgical Innovation and Advocacy

Drs. Adams and Marin have each pioneered new surgeries for life-threatening cardiovascular conditions. Dr. Adams is an internationally recognized expert in mitral valve repair and reconstruction, and Dr. Marin is a world leader in the minimally invasive treatment of aortic aneurysm disease. Both are also vocal advocates for better screening, diagnosis, and treatment of patients not just at Mount Sinai, but throughout the world.

MITRAL VALVE DISEASE — RECONSTRUCTION NOT REPLACEMENT

“Today almost all patients with mitral valve prolapse are candidates for valve reconstruction. Unfortunately and despite a clear consensus in current guidelines, valve replacement remains surprisingly common in the United States,” said Dr. Adams.

Mount Sinai is nationally recognized for its expertise in mitral valve reconstruction. Dr. Adams, commenting on a recent publication from his group, noted, “At Mount Sinai we had a 100 percent repair rate, and that was made possible not only because of our surgical expertise, but because of our entire team of anesthesiologists and cardiologists who provide expert help with valve imaging and clinical care.” In addition to managing a clinical program of over two hundred mitral valve reconstructions a year, Dr. Adams and his colleagues speak and write extensively about their approach to valve reconstruction.

The Mount Sinai team works closely with Dr. Alain Carpentier, MD, PhD, Professor of Cardiovascular Surgery at Hôpital Europeen Georges Pompidou in Paris and the father of mitral valve reconstruction. Dr. Adams and his partner Farzan Filsoufi, MD, Associate Professor of Cardiothoracic Surgery, are co-authoring a textbook with Dr. Carpentier entitled *Carpentier’s Valve Reconstruction*, due out in 2008.

Dr. Adams is also the co-inventor of the Carpentier-McCarthy-Adams IMR Etlogix Annuloplasty Ring, the first asymmetric ring designed to treat asymmetric dilation. He and Dr. Carpentier are again collaborating on a future generation of annuloplasty rings that will facilitate mitral valve repair. “Without question our unique collaboration with Professor Carpentier is one of the key elements that have catapulted Mount Sinai into the upper echelon of mitral valve reconstructive centers in the world,” said Dr. Adams.



DAVID ADAMS, MD, THE MARIE-JOSÉE AND HENRY R. KRAVIS PROFESSOR AND CHAIR OF CARDIOTHORACIC SURGERY. AN IMAGE OF A REPAIRED TRICUSPID VALVE IS DISPLAYED ONSCREEN.

Teaching Surgical Volunteerism and Independence

A pilot program in the Dominican Republic gives third-year residents the opportunity to perform surgical procedures in a resource-limited setting. The elective rotation, one of only a handful of clinical rotations that take place outside the United States, is the subject of a paper written by Mount Sinai faculty and residents in a recent issue of the *Journal of Surgical Education*.

Silverberg D, Wellner R, Arora S, Newell P, Ozao J, Sarpel U, Torrino P, Wolfeld M, Divino C, Schwartz M, Silver L, Marin M., *Journal of Surgical Education*, 2007 May-Jun; 64(3): 143-49.

“The program helps young surgeons develop independent skills and enhances their

understanding of just how much volunteerism can mean to people throughout the world. It’s also turned out to be a tremendous recruiting tool for Mount Sinai. The very best medical school graduates want to be part of a program that gives them such an extraordinary opportunity,” said Dr. Marin, one of the founders of the program.

The Mount Sinai team investigated several locations for the clinical rotation and ultimately decided on the Hospital of Juan Pablo Pina, a 250-bed public facility in San Cristobal, which was receptive to hosting residents and learning from them. One resident at a time travels to San Cristobal and spends one month at the hospital. About seven residents rotate through the program every year. The paper notes that on average, each resident performs about fifty to

ninety procedures during his or her stay, almost 40 percent of which are general surgical procedures. The residents also perform surgeries in a variety of specialty areas, including general vascular surgery, urology, neurosurgery, orthopedics, and pediatrics.

Rachel Wellner, now a fourth-year surgery resident, spent January 2006 in San Cristobal. “You learn to think on your feet and how to best use the tools at hand,” she said. “I used dish soap to scrub before operating. The running water would go off several times a day. Sometimes the power went out. Even when the power was on, the anesthesiologist provided ventilation by hand using a bag. The operating rooms consisted of bare-bones technology. I realized that if I could handle this, I could handle anything.”



MICHAEL MARIN, MD, THE DR. JULIUS H. JACOBSON II CHAIR IN VASCULAR SURGERY, REVIEWS X-RAYS OF AORTIC ANEURYSMS.

AORTIC DISEASE — SAVING MORE LIVES

“Patients don’t know they have aortic aneurysm disease until a catastrophic event occurs. That’s why screening programs are so critical. Once aortic disease is diagnosed, we can successfully repair the artery with minimally invasive surgery,” said Dr. Marin.

After many years of worldwide leadership as a surgical center for repairs of aneurysms of the aorta under Randall B. Griepp, MD, today Mount Sinai performs more aortic minimally invasive repairs than any other surgical center in the country. In 1992, Dr. Marin was, in fact, the first surgeon in the United States to perform the procedure when he was at Montefiore Medical Center. “Mount Sinai recruited me in 1996 to create a program in minimally invasive endovascular surgery. When I started here, there weren’t even any devices available to help repair arteries from the inside with minimally invasive techniques, so my team hand built them,” explained Dr. Marin.

“Early on, Mount Sinai recognized the importance of this aortic aneurysm program and supported us as we got it off the ground. Today, we are not only leaders in minimally invasive surgical procedures; we have spearheaded efforts to make diagnosis a priority. To that end, we led successful lobbying efforts to have Medicare and other programs cover screening costs for aortic disease,” continued Dr. Marin.

Mount Sinai is further expanding the reach of its expertise and services by creating medical practices throughout the New York area that will screen patients for aortic disease. Doctors from these practices will then transfer patients to Mount Sinai if complex tertiary care is required. “This will certainly help us save lives by discovering the disease in more patients before fatal ruptures occur,” said Dr. Marin.

Another key aspect of Mount Sinai’s comprehensive approach is research into the genetic component of aortic disease. “We have a steady flow of research from our large registry of patients. Today we are beginning to do the micro-array genetic analysis to isolate the specific gene or genes that may be associated with aortic disease. If we could identify patients who are at greatest risk, we could encourage them to get periodic screenings and thus prevent millions of totally unnecessary catastrophic events,” said Dr. Marin.



THE NEWS OF THE YEAR

The Atlantic Philanthropies recognizes Mount Sinai as a leader in Adolescent Medicine.

The Mount Sinai Adolescent Health Center received a \$12 million, five-year grant from The Atlantic Philanthropies. This support will fund new programs and further establish the Center as a national model.

THE WORK OF DECADES

At Mount Sinai we are addressing the real risks that adolescents face and the dreadful lack of access to services, which is a crisis for kids today. There is a desperate, unmet need in New York and across the country.

— ANGELA DIAZ, MD
Director of The Mount Sinai Adolescent Health Center and the Jean C. and James W. Crystal Professor of Pediatrics

ANGELA DIAZ, MD, DIRECTOR OF THE MOUNT SINAI ADOLESCENT HEALTH CENTER, STANDS BEFORE THE EAST HARLEM COMMUNITY.



AN INVITATION TO THE MOUNT SINAI ADOLESCENT HEALTH CENTER'S ANNUAL FUNDRAISER (IMAGE DESIGNED AND DONATED BY MTV).

We start where each adolescent is. We encourage kids to come and share their lives with us even if those lives include abuse or other issues that are extremely hard to talk about.

— DR. ANGELA DIAZ

An Advocate for the Forgotten Adolescent

Dr. Angela Diaz grew up in the Bronx and, as a teenager, found her way to The Mount Sinai Adolescent Health Center, where a social worker changed her life. Her experience reaffirmed her dream to pursue a career in medicine. Today she is an advocate for the forgotten adolescent, and under her leadership, The Mount Sinai Adolescent Health Center has become the largest center of its kind in the country.

Among her many accomplishments, Dr. Diaz has served as a White House Fellow, a member of the Food and Drug Administration Pediatric Advisory Committee, and a member of the National Institutes of Health State of the Science Conference on Preventing Violence and Related Health Risk Social Behaviors in Adolescents. She has also chaired the National Advisory Committee on Children and Terrorism. She is currently a member of the Board of Directors of the New York City Department of Health and Mental Hygiene and the NIH National Institute of Child Health and Human Development, Biobehavioral and Behavioral Sciences Committee.

ENCOURAGING KIDS TO SHARE THEIR LIVES

“When we provide adolescents with comprehensive services designed just for them and get them to care more about their own health, we are providing them the ability to meet their tremendous promise,” explained Dr. Diaz.

The Mount Sinai Adolescent Health Center, which has been serving the community for nearly forty years, is one of the very few places in the country that offers free, integrated services to an otherwise underserved population of adolescents and young adults, ages 10–21. The Center provides high-quality services that include

routine care, treatment of acute problems, mental health services, reproductive health care, substance abuse prevention and treatment, HIV prevention and treatment, and medical-legal services. The Center will also be adding dental care and new programs focusing on the prevention of obesity and diabetes.

In a typical year, the Center serves more than 10,000 patients who log more than 45,000 visits. Over the next five years, the program will expand to accommodate 15,000 patients.

But what makes the Center successful is much more than the particular services it offers. “We start where each adolescent is. We encourage kids to come and share their lives with us even if those lives include abuse or other issues that are extremely hard to talk about. Once they are willing to do that, we can address all their health issues and build long-term relationships. These kids also tell their friends about us, which is key. We’ve grown primarily through the power of word-of-mouth recommendations from the adolescents themselves,” explained Dr. Diaz.

EXTENDING THE REACH OF ADOLESCENT HEALTHCARE

The Mount Sinai Adolescent Health Center is already a major training site for adolescent healthcare professionals from around the world, offering one of only twenty-six adolescent medicine fellowships in the country. The Center plans to expand the training and teaching aspects of its work, and eventually create a formalized institute that will allow physicians, nurses, social workers, and teachers from across the United States to build their own effective healthcare and education programs.

“We are also actively engaged in a multi-stage, five-year effort to analyze our own programs to find out where we are most effective,” said Dr. Diaz. “The evaluation

What Makes Some Adolescents Resilient?

“So many of the teenagers who come to The Mount Sinai Adolescent Health Center have been traumatized. These kids experience poverty, racism, physical or sexual abuse—all the wear and tear of very tough lives. Yet so many of them do very well in spite of what they have been through. We are interested in learning more about what makes some adolescents particularly resilient,” explained Dr. Angela Diaz.

Since 2003, when Mount Sinai organized and hosted a conference entitled “Resilience in the

Face of Trauma: Adolescent Mental Health and Youth Development,” Center clinicians have continued to explore the various components of resilience. Is it a physiological measurement linked to something in the brain? To what degree is it an emotional measure influenced by a special relationship with someone who is close and nurturing?

“We are incorporating the study of resilience into the Center’s self-evaluation project,” added Dr. Mary Rojas. “Among the many factors we are looking at is the impact of the Center on adolescent self-confidence. Does participation in our

programs give kids an added sense of empowerment? And if so, how can our model be extended to help adolescents in this country and around the world recover from potentially crushing trauma?”

includes looking at our data systems so that we can better track our patient profiles, and monitor needs and health outcomes. We have an advisory panel that includes experts from Mount Sinai and around the country, and we will be able to formalize our learning. There is a strong national interest in replicating our model of services provision.”

RESEARCH WITH BOTH LONG-TERM AND IMMEDIATE IMPACT

The Center’s research studies and questionnaires are designed so that research is informed by the adolescent patients’ perspectives. “We are involved in many research projects that translate directly to patient care,” said Mary Rojas, PhD, Research Director and Associate Professor of Pediatrics and Health Policy. One project that has recently received significant funding from NIH focuses on the human papillomavirus (HPV) and the effectiveness of the HPV vaccine on high-risk adolescent girls.

Another study currently under way at the Center examines disclosure of abuse in primary care settings to determine the best way to get adolescents to reveal sensitive and critical information to clinicians. Six hundred Center teenagers were randomized to one of four groups to test the most effective methods of eliciting current or past abuse: computerized questionnaire, paper and pencil questionnaire, clinician-administered questionnaire, or an unstructured clinical interview. “We are now analyzing the data to see which of these methodologies results in better disclosure of this very sensitive information. Our learning can be quickly translated into improved treatment,” explained Dr. Diaz.

In the coming years, the Center will be increasing its research activity in a number of areas—reproductive health, obesity, and mental health, which will include the study of resilience. “We are recruiting leading experts in these areas in order to enhance adolescent health programs as quickly as possible,” said Dr. Rojas.



MARY ROJAS, PHD (LEFT), WORKS WITH CASSIMA PRYCE (RIGHT), A PATIENT OF THE ADOLESCENT HEALTH CENTER, AND A PEER EDUCATOR FOR SPEEK, SINAI PEERS ENCOURAGING EMPOWERMENT THROUGH KNOWLEDGE.



THE NEWS OF THE YEAR

Mount Sinai receives the Presidential Community Service Award for its pioneering East Harlem Health Outreach Partnership.

The School of Medicine received a 2006 National Community Service Honor for a free clinic created by students. It is the only medical school in the country to be so honored.

THE WORK OF DECADES

Programs like EHHOP and the Global Health Center not only offer a tremendous service to the community, they help us attract the brightest students to Mount Sinai. And attracting the best and brightest students allows us to recruit top scientists and clinicians to the faculty.

— DAVID MULLER, MD
The Marietta and Charles C. Morchand Chair and
Dean of Medical Education

DAVID MULLER, MD, DEAN OF MEDICAL EDUCATION (CENTER), SPEAKS WITH A STUDENT.

There is an explosion of interest among physicians at all stages, in training or beyond—a heightened awareness that as doctors they live and practice in a larger world community.

— JONATHAN RIPP, MD

Serving the World Community

At Mount Sinai, the desire to serve sends many students and faculty far beyond the New York community. What started out as a grassroots global health effort now has official status, with dedicated faculty and links to a network of international sites that welcome students. The Global Health Center, a new program founded under the leadership of Dr. Muller and Ramon Murphy, MD, Clinical Professor of Pediatrics and of Community and Preventive Medicine, and by faculty from the Departments of Medicine, Pediatrics, Emergency Medicine, and Community Medicine, educates and trains incoming students and residents about the developing field of

international medicine, including trauma, disaster relief, pediatrics, reproductive health, and basic clinical care.

Not only is the study of global health formally integrated into the medical school curriculum, it now includes a Master of Public Health specialty track. “There is an explosion of interest among physicians at all stages, in training or beyond—a heightened awareness that as doctors they live and practice in a larger world community,” said Jonathan Ripp, MD, Assistant Professor of Medicine (General Medicine), who is part of the working group shaping global health efforts.

An Opportunity to Serve and Learn

“I’ve always believed in the pay-it-forward philosophy, the repaying of good deeds by doing good things for others,” said Dr. Charney. From its beginnings, Mount Sinai’s strong tradition of service has helped attract those who are committed to creating effective models for community medicine. Because Mount Sinai sits between the richest and poorest zip codes in New York, students and faculty are particularly sensitized to the challenges of treating those who do not have regular access to health care.

A ROLE MODEL FOR THE NEXT GENERATION

David Muller, MD, Dean for Medical Education, embodies the “pay-it-forward” credo. In 1996, Dr. Muller co-founded the Visiting Doctors Program, now the largest academic home visit program in the country. Visiting Doctors not only helps over 1,000 mostly elderly patients avoid unnecessary and expensive hospital stays, it plays an integral role in medical education. All students and residents are required to complete Visiting Doctor rotations as part of their training. “David Muller has far-reaching ideas about service and education. It says a lot about Mount Sinai, someone with such an incredible commitment to the community is in a position of such influence,” said Yasmin Meah, MD, EHHOP Program Director and Assistant Clinical Professor of Medicine.

Dr. Muller and his colleagues encourage students throughout their Mount Sinai careers to develop their own creative approaches to community service. EHHOP is a prime example of just how much motivated students can accomplish.

EHHOP — A BEACON FOR THE COMMUNITY

EHHOP is a student-run clinic that provides free primary care to uninsured adult patients. It is open every Saturday at Mount Sinai’s Internal Medicine Associates. Dr. Meah is the EHHOP program director and the 2007 recipient of the Humanism in Medicine Award from the Association of American Medical Colleges. David Thomas, MD, Medical Director of the Internal Medicine Associates and Associate Professor of Medicine (General Medicine) and Rehabilitation Medicine, is also the EHHOP medical director. “Dr. Thomas and I are the attendings, but students run the show,” said Dr. Meah. The clinic has an executive committee of three or four students and a steering committee of eleven to fourteen students who are responsible for specific departments such as outreach, research, social work, referrals, and fundraising.

Every Saturday five to ten working teams of two students each operate the clinic. Each team has a junior clinician (a first- or second-year student) and a senior clinician (a third- or fourth-year student). The teams see individual patients and then present cases to the volunteer attending clinician of the day, who is usually a member of Mount Sinai’s Department of Internal Medicine. “The attending physician will review the case, see the patient, and do a lot of bedside teaching,” explained Dr. Meah. Then students follow up with tests, medication, and treatment plans for their patients. “At EHHOP students are learning to follow patients for a full year, which is an incredible opportunity. They become very sophisticated at delivering excellent primary care to an underserved population, even when resources are limited,” continued Dr. Meah.

EHHOP also works with Mount Sinai’s REAP (Resource Entitlement Advocacy Program) project to aggressively seek government benefits for patients. The paperwork can be so overwhelming that even those who qualify for entitlement

Teaching Community Means Teaching Diversity

Mount Sinai places a high priority on increasing diversity in medicine and encouraging youth from the community to enter the healthcare professions. Why? Because studies have shown that physicians who are themselves from diverse and underserved communities are more likely to remain after training in these communities, making a contribution to patient care and closing the gap in healthcare disparities.

While national statistics show that African Americans and Latinos—especially males—are underrepresented in medical schools today,

Mount Sinai School of Medicine has a more diverse student body than most—21.3 percent of its students are either African American or Latino.

“Our Center for Multicultural and Community Affairs (CMCA),” said Gary Butts, MD, Mount Sinai’s Associate Dean for Diversity Programs, Policy, and Community Affairs, “symbolizes Mount Sinai’s commitment to increasing the number of Latinos and African Americans who are medical students, residents, and physicians. Our effort is part of a campaign to close the gap in healthcare disparities and to reduce the prevalence of preventable disease.”

For three decades, CMCA has fostered pipeline programs that encourage and prepare high school and college students for careers in health care. These students also contribute to clinical, basic science, and health services research about health disparities.

In addition, Dr. Butts and CMCA facilitate the recruitment of graduate and medical students, residents, postdoctoral fellows, and faculty from underrepresented groups in medicine; accelerate the expansion of research opportunities and funding related to minority health; and enhance education and training that improve professional competencies and cross-cultural healthcare in the community.

programs don’t know how to apply. Students volunteer their time to navigate the application process and bring patients eligible to receive benefits into the mainstream hospital system.

In another extension of the original program, EHHOP has recently launched the Chronic Care Project, which partners students with social workers to follow patients with such conditions as hypertension and diabetes. “These multidisciplinary teams look at every aspect of a patient’s treatment. Over time, students learn firsthand that controlling these conditions requires not just medication, but the successful management of diet, stress, and many other factors in their patients’ lives,” said Dr. Meah.

“EHHOP continues to be a beacon for the community. That it was established by students and now involves over 60 percent of them in direct care sends a clear message that for the Mount Sinai doctor of tomorrow, the highest priority is access to care today,” said Dr. Muller.

Under Dr. Muller’s leadership, Mount Sinai has also piloted the innovative Seniors as Mentors Program, which partners first- and second-year students with elderly patients from the Coffey Geriatrics Associates practice. This program was created by Rosanne Leipzig, MD, PhD, the Gerald and Mary Ellen Ritter Professor of the Brookdale Department of Geriatrics and Adult Development, Professor of Healthy Policy and Medicine, and the Vice-Chair of Education; Rainier Soriano, MD, Assistant Professor of Medicine and Geriatrics and Adult Development; and Valerie Parkas, MD, Assistant Professor of Medicine (Infectious Diseases). What is unique about the program is that it allows students to follow individual patients on a long-term basis. “Usually medical students see these patients only when they are hospitalized. By getting to know patients in the community who are not necessarily in crisis, they gain a perspective on healthy aging and an understanding of the complicated ethical, cultural, and health-system issues associated with an aging population,” explained Dr. Muller.



STUDENTS COME TO DR. DAVID MULLER WITH THEIR QUESTIONS.

EHHOP continues to be a beacon for the community. That it was established by students and now involves over 60 percent of them in direct care sends a clear message that for the Mount Sinai doctor of tomorrow, the highest priority is access to care today.

— DR. DAVID MULLER



THE NEWS OF THE YEAR

John Morrison, PhD, is named Dean of Basic Sciences and the Graduate School of Biological Sciences.

The Graduate School is launching a number of new, thematically oriented programs affiliated with Mount Sinai's translational research institutes.

JOHN H. MORRISON, PHD, THE W. T. C. JOHNSON PROFESSOR OF GERIATRICS AND ADULT DEVELOPMENT (NEUROBIOLOGY OF AGING), REVIEWS HIGH-MAGNIFICATION IMAGES OF INDIVIDUAL DENDRITIC SPINES, TENTACLE-LIKE STRUCTURES THAT CONNECT NEURONS.

THE WORK OF DECADES

Every student who works with John Morrison is inspired by his approach. He is a creative scientist who never forgets that patients are the ultimate beneficiaries of his work.

— DENNIS CHARNEY, MD
Dean, Mount Sinai School of Medicine



DR. JOHN MORRISON ADVISES
GRADUATE STUDENT ATHENA WANG.

At the Forefront of Science and Medicine

From the beginning of his career, John Morrison's professional interests and philosophy have always put him a bit ahead of his time. "When I decided I wanted to work in neuroscience, it didn't yet exist as a discipline. But I knew I wanted to be a neuroscientist and work with interdisciplinary teams," he explained. Dr. Morrison's own achievements make him a natural choice to help develop and lead new programs at the Graduate School of Biological Sciences emphasizing established and emerging scientific themes.

In April he received a MERIT (Method to Extend Research In Time) Award from the National Institute on Aging, a division of the National Institutes of Health (NIH). A MERIT Award is grant support from the NIH that honors a long-standing and distinguished record in scientific research and achievement. Dr. Morrison, PhD, Dean of the Basic Sciences and the Graduate School of Biological Sciences and the W. T. C. Johnson Professor of Geriatrics and Adult Development (Neurobiology of Aging), is the fifth researcher at Mount Sinai to receive a MERIT Award in the past four years.

The \$5 million MERIT Award will support Dr. Morrison's research over the next ten years. Dr. Morrison received the award for his work examining the effects of aging on the brain, which he has been conducting for the past two decades.

Brain cells typically lose their neuroplasticity during normal aging. Dr. Morrison's goal is to identify when and where changes in brain cell neuroplasticity take place, and how to intervene to promote successful brain cell adaptability. This, in turn, may help reduce the risk of age-related cognitive decline, or possibly even dementia and Alzheimer's disease.

That the MERIT Award comes at a time when funding from the National Institutes of Health is shrinking is especially noteworthy. "This kind of financial support from the NIH during a challenging time for researchers is a testament to the strength of the entire Mount Sinai faculty. To have five MERIT awardees at Mount Sinai at one time is an achievement," said Dr. Morrison.

To put the grant in perspective, only 10 percent of grant requests to the NIH are approved each year; of that 10 percent, less than 2 percent receive MERIT Award support.

"NIH is really interested in translation, and it's not just a buzzword, and it's not just a phase," continued Dr. Morrison. "We are a freestanding academic medical center with great scientific and clinical strength, so we are in an ideal position to be at the forefront of where science and medicine are heading."

INTEGRATING CLINICAL PROBLEMS INTO TRAINING

The Graduate School is launching a number of new, thematically oriented programs affiliated with Mount Sinai's translational research institutes. Each training program will have the autonomy to expand its curriculum to include specialized courses of study that integrate relevant clinical problems into its basic science focus. Three new training programs will be launched in the fall of 2007—Cancer Biology, Immunology, and Pharmacology and Systems Biology.

Mount Sinai is well positioned for a PhD focus in Cancer Biology, given its historic strength in the oncological sciences. The program will emphasize the cell biology and molecular mechanisms of cancer, and it will be closely tied to the new Cancer Institute, providing a rich environment of translational opportunities for the Graduate School students.

Similarly, the Immunology training program will offer a basic science education within the context of such issues as progressive autoimmune disorders and immunological factors that occur after organ transplantation and stem cell therapy. These issues are also central to the work of the Institute for Immune Diseases and the Black Family Stem Cell Institute.

The program in Pharmacology and Systems Biology will provide rigorous training in both pharmacology and the newly emerging discipline of systems biology. It will focus on the complex interactions within the cell and across organ systems that have a role in the high-level integrative functions in the body. Students will have an opportunity to work with the Experimental Therapeutic Institute, where basic science discoveries on viable drug targets will be translated into drugs with greater biochemical and organ specificity than those currently available.

The Graduate School is also in the planning stage for a new PhD program in Developmental and Stem Cell Biology. This program will train young scientists in the experimental techniques of developmental and stem cell biology, in the hope that they will commit to careers focused in these promising avenues of research. This program will be launched in partnership with the Black Family Stem Cell Institute.

In addition to these new programs in basic science, the Graduate School is also developing a PhD program in Clinical Research that will train healthcare professionals — particularly physicians who have recently completed their residencies — in the scientific disciplines required for the design and analysis of research projects that involve people. Graduates of this Mount Sinai program will be ideally suited to lead and implement the final, clinically intensive stage of translational medicine as it moves from bench to bedside.

Overall, this integrative approach will further enhance the translational relevance of the Graduate School's existing training programs. For example, training in neuroscience will benefit from the development of the Brain Institute, which will focus on brain repair. Introductory training in neuroscience may involve lectures about neurodegenerative diseases or traumatic brain injury from doctors, patients, and family members of afflicted individuals. Similarly, the microbiology training area will be linked to the Emerging Pathogens Institute and provide exposure and research opportunities directly linked to pathogenesis and prevention of infectious diseases. This style of training introduces PhD students to medical problems and gives them access to clinical faculty from the outset of their training. Furthermore, Mount Sinai's ten graduate programs will be ideally positioned to receive NIH training grants that emphasize translational research.

"Early in my career, I couldn't apply my research to any kind of clinical work on Alzheimer's disease. People barely knew what Alzheimer's disease was in 1975, and we didn't have mouse models of neurodegenerative disorders. That's all recent. I'm really excited about giving students the opportunity to apply their skills as basic scientists to translational research that can make a tremendous difference to patients," said Dr. Morrison.



DR. JOHN MORRISON IN HIS LABORATORY



STEPHEN HARVEY, CPA, MBA
SENIOR VICE PRESIDENT OF FINANCE,
MOUNT SINAI SCHOOL OF MEDICINE

Message from the Senior Vice President of Finance

I am pleased to report that Mount Sinai School of Medicine continued to enjoy strong financial performance in 2006–07. From revenues of \$1.1 billion, the total surplus for 2006 was \$125.6 million, an increase of \$55.8 million over 2005. For the first six months of 2007, the total surplus was \$74.7 million. Our recent financial success is reflected in Standard & Poor's A- rating and MBIA's commitments to insure bond issues that will support facilities renovations and new building construction in 2007 and 2008. Over the past five years, the School's total equity has grown by \$322 million to \$863.7 million as of June 30, 2007.

We attribute the School's favorable financial results to the outstanding work of our faculty, the generous philanthropic support of our trustees and donors, and the growth in our endowment portfolio from favorable investment returns. Another financial success factor is the mission-based CARTS (Clinical, Administrative, Research, Teaching & Strategic) budget formula that rewards the basic and clinical science departments and faculty based on their performance. Closely tied to the CARTS budget formula are agreed-upon performance indicators and a performance matrix that Dr. Charney reviews with the Chairmen on a quarterly basis. Unfavorable budget/performance variances require corrective action plans that are overseen by a Financial Improvement Committee.

Here are some highlights of the School's financial progress:

Expansion and renovation of educational facilities has allowed the entering medical student class to increase by 20 students to a total of 140 in 2007.

The School is a top 20 recipient of NIH funds awarded to the nation's 125 medical schools.

Over the past five years, NIH awards have increased 46 percent to \$225.4 million in 2006, with 502 awards to 305 research investigators.

2,400 research projects of all types were active during 2006, totaling \$286.5 million, of which 78.7 percent were supported by the federal government.

Despite significant growth in research spending, the backlog of unexpended grants continues to grow, totaling \$172.2 million on June 30, 2007.

Faculty practice receipts of \$273.8 million in 2006 have grown an average of 10.7 percent annually over the past three years.

More than 750 clinical physicians are members of the School's faculty practice.

The faculty practice contributes more than \$30 million annually to School operations to support clinical, research, and capital project initiatives.

To support the rapid growth in School programs, \$179 million of capital projects were approved in 2007 to support education, research, and patient care programs.

Strong financial performance and conservative financial management provide the resources to invest in faculty recruitment, programmatic growth, and facilities improvements according to the School's strategic plan.



LOUIS S. RUSSO, MD
 CHIEF EXECUTIVE OFFICER OF THE FACULTY PRACTICE ASSOCIATES,
 DEAN OF CLINICAL AFFAIRS AT MOUNT SINAI SCHOOL OF MEDICINE,
 AND SENIOR VICE PRESIDENT OF THE MOUNT SINAI MEDICAL CENTER

Message from the Chief Executive Officer of the Faculty Practice Associates

Mount Sinai School of Medicine faculty have three distinct but related missions — education, clinical service, and research. Their clinical mission is largely fulfilled at the Faculty Practice Associates (FPA), which is a multi-specialty group practice with services ranging from primary care to the most sophisticated quaternary disease management.

Mount Sinai's FPA responds to the needs of a broad patient base, with over 400,000 visits during 2007 alone. At the same time, the experience of serving such a diverse group enriches our undergraduate and graduate medical education programs.

Our diverse patient base also allows our clinical investigators to develop new treatments, techniques, and protocols that enhance the well-being of both our own patients and those throughout the world. For example, an FPA member recently developed the first FDA-approved treatment for Fabry's disease, a disorder caused by the lack of or a defective enzyme needed to properly metabolize lipids. And this year, our surgeons in otolaryngology and neurosurgery developed new, minimally invasive techniques that significantly improve the treatment of skull-base tumors.

While the FPA is proud of its high-quality medical care and technological advances, we are also committed to creating a compassionate and patient-centered environment. Our service-related guidelines speak to the importance of patient access, communication, and other issues central to the patient experience. All FPA staff participate in a customer service training program, and we regularly evaluate our overall performance to ensure continuous improvement and patient satisfaction.

As with all faculty practice plans, the clinical revenue generated by the FPA significantly contributes to the financial strength and vitality of the School and The Mount Sinai Hospital. FPA receipts growth has averaged 10 percent annually over the past three years, and exceeded \$273 million in 2006. This growth can be attributed to increased physician productivity, new recruits, and billing and collection improvement initiatives.

Finally, the FPA is committed to maintaining a leadership role in the nation's healthcare system. Strategically, we believe that our greatest growth will come from multidisciplinary programs, such as those focused on women's and men's health or comprehensive cancer care, to name just a few. In addition, we will continue to strengthen our business practices and explore ways to further improve the quality of the patient experience. It is indeed an exciting time to be at Mount Sinai, and I feel privileged to work alongside some of the most visionary and dedicated physicians and staff.

Mount Sinai Affiliates

In addition to its affiliation with the Hospital, the School is affiliated with a number of other healthcare and research institutions. These affiliations enrich the educational, clinical, and research programs of the School. The academic affiliations include:

Baylor Research Institute

A Dallas, Texas–based research and treatment center that is focused on finding prevention therapies and treatments for diseases

Brookhaven National Laboratory

A multi-program national laboratory based on Long Island in Upton, New York, and operated by Brookhaven Science Associates for the US Department of Energy

Cabrini Medical Center

A 493-bed teaching hospital serving patients in Mid-Manhattan and the Lower East Side

Elmhurst Hospital Center in Queens

A 593-bed hospital center that is part of New York City Health and Hospitals Corporation

Englewood Hospital

A 520-bed teaching hospital and the largest voluntary acute care facility in Bergen County, New Jersey

James J. Peters VA Medical Center, Bronx, NY

A tertiary care facility for veterans in metropolitan New York providing a full range of patient care services as well as education and research

Jersey City Medical Center

The only teaching hospital in Hudson County, New Jersey

The Jewish Home and Hospital

A large nursing home facility in Manhattan

Maimonides Medical Center

One of the leading health care providers in Brooklyn

Morristown Memorial Hospital

Part of the Atlantic Health System, home to one of the largest cardiac surgery centers in northern New Jersey

Newark Beth Israel Medical Center

A 596-bed regional care teaching hospital that is part of the Saint Barnabas Health Care System

New York University

(The School is affiliated with NYU for degree-granting purposes)

North General Hospital

Provides primary and secondary care services to residents of Central and East Harlem

Overlook Hospital

Part of the Atlantic Health System and a leader in stroke care and neuroscience

Queens Hospital Center

Part of New York City Health and Hospitals Corporation and a major provider of healthcare services to the southeastern and central Queens community

Saint Barnabas Medical Center

One of New Jersey's largest hospitals and the flagship of the Saint Barnabas Health Care System

St. Joseph's Hospital and Medical Center

A 792-bed medical center located in Paterson, New Jersey, including a Children's Hospital that is one of four state-designated children's hospitals in New Jersey

Select Centers, Programs, and Projects

Mount Sinai is home to many leading research centers and programs that have received major federal and philanthropic support. These centers and programs are dedicated to advancing the prevention, treatment, and management of some of the most challenging mental and physical illnesses. The following centers and programs reflect a sample of those that were newly funded during 2006 and 2007.

Center for Systems Biology in New York

PRINCIPAL INVESTIGATOR

Srinivas (Ravi) Iyengar, PhD

The Dorothy H. and Lewis Rosenstiel Professor and Chair of Pharmacology and Systems Therapeutics

FUNDING SOURCE

National Institute of General Medical Sciences

National Institutes of Health

Center to Advance Palliative Care

PRINCIPAL INVESTIGATOR

Diane E. Meier, MD

Director of the Center to Advance Palliative Care, the Catherine Gaisman Professor of Medical Ethics, and Professor of Geriatrics and Adult Development and Medicine

FUNDING SOURCE

Fan Fox and Leslie R. Samuels Foundation

JEHT Foundation

Mount Sinai Injury Control Research Center

PRINCIPAL INVESTIGATOR

Wayne A. Gordon, PhD

Professor of Rehabilitation Medicine, Associate Professor of Psychiatry

FUNDING SOURCE

Centers for Disease Control

Innate/Adaptive Immune Interactions in Gut Inflammation

PRINCIPAL INVESTIGATOR

Lloyd F. Mayer, MD

Professor of Medicine and Chief of the Divisions of Clinical Immunology and Gastroenterology

FUNDING SOURCE

National Institute of Diabetes and Digestive and Kidney Diseases

Center for Research and Influenza Surveillance

PRINCIPAL INVESTIGATOR

Adolfo García-Sastre, PhD

Professor of Microbiology and Medicine (Infectious Diseases) and the Fischberg Chair in Medicine

FUNDING SOURCE

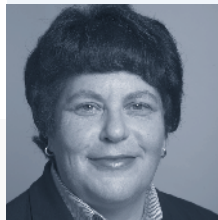
National Institute of Allergy and Infectious Diseases

Select Faculty Honors and Awards

ADAMS



ALBERINI



ASBELL



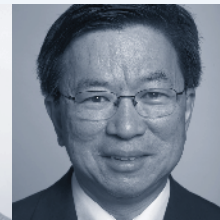
BEDERSON



BOGDANOV



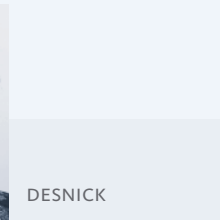
CHOO



CHUANG



DELIGDISCH



DESNICK



DIETERICH

Stuart A. Aaronson, MD

Excellence in Technology Transfer Award
NATIONAL FEDERAL LABORATORY CONSORTIUM

Gift Award for Novel Breast Cancer Markers and Mechanisms
BREAST CANCER RESEARCH FOUNDATION

David H. Adams, MD

Member, Program Committee
AMERICAN ASSOCIATION FOR THORACIC SURGERY

Member, Board of Directors
CARDIOTHORACIC SURGERY NETWORK

Member, Affairs and Government Relations Committee
AMERICAN ASSOCIATION FOR THORACIC SURGERY

Member
SOCIETY OF THORACIC SURGEONS
WORKFORCE ON ADULT CARDIAC SURGERY

Christina Alberini, PhD

Treasurer
MOLECULAR AND CELLULAR COGNITION SOCIETY

George Alonso, MD

Presidential Voluntary Service Award
US AGENCY FOR INTERNATIONAL DEVELOPMENT

Vasanthi Arumugam, MBBS

Presidential Voluntary Service Award
US AGENCY FOR INTERNATIONAL DEVELOPMENT

Penny A. Asbell, MD, MBA

American Academy of Ophthalmology Honor Award
JOINT MEETING OF THE AMERICAN ACADEMY OF OPHTHALMOLOGY
AND THE ASIA PACIFIC ACADEMY OF OPHTHALMOLOGY

Suzanne Veronneau-Troutman Award
WOMEN IN OPHTHALMOLOGY

Amar Ashraf, MD

Presidential Voluntary Service Award
US AGENCY FOR INTERNATIONAL DEVELOPMENT

Manisha Balwani, MD

Fellow, Roscoe Brady Lysosomal Storage Diseases
NATIONAL ORGANIZATION FOR RARE DISORDERS

Natan Bar-Chama, MD

Member, Board of Directors
AMERICAN FERTILITY ASSOCIATION

Member, Board of Directors
SOCIETY OF MALE REPRODUCTIVE UROLOGY

Member, Board of Directors, Membership Committee
AMERICAN SOCIETY OF REPRODUCTIVE MEDICINE

Margaret Baron, MD, PhD

Lead Reviewer Award
STEM CELLS JOURNAL

Joshua Bederson, MD

Chair, Cerebrovascular Section
AMERICAN ASSOCIATION OF NEUROLOGICAL SURGEONS AND CONGRESS
OF NEUROLOGICAL SURGEONS

Nina Bickell, MD, MPH

Member, Health Services Organization and Delivery Study Section,
Center for Scientific Review
NATIONAL INSTITUTES OF HEALTH

Ira J. Bleiweiss, MD

Member, Board of Directors
AMERICAN SOCIETY OF BREAST DISEASE

Vice President
NEW YORK METROPOLITAN BREAST CANCER GROUP

Trustee
NEW YORK PATHOLOGICAL SOCIETY

Vladimir Bogdanov, PhD

Best Article Award
JOURNAL OF THROMBOSIS AND HAEMOSTASIS

Dana Bovbjerg, PhD

Fellowship Award
SOCIETY OF BEHAVIORAL MEDICINE

Andrea Branch, PhD

Member, Study Section, Clinical Research and Field Studies
NATIONAL INSTITUTES OF HEALTH

Gary Brauner, MD

President-elect
INTERNATIONAL SOCIETY OF DERMATOLOGIC SURGERY

David E. Burstein, MD

Member, Peer Review Committee
NATIONAL CANCER INSTITUTE

Martin Camins, MD

Member, Board of Regents
AMERICAN COLLEGE OF SURGEONS

James Capozzi, MD

Chair, Committee on Ethics
AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS

Luis Cardoso-Landa, PhD

New Investigator Research Award
ORTHOPAEDIC RESEARCH SOCIETY

Dennis S. Charney, MD

Member, Subcommittee on Post Traumatic Stress Disorder
INSTITUTE OF MEDICINE

The George N. Thompson Founder's Award for Distinguished Service
SOCIETY OF BIOLOGICAL PSYCHIATRY

Mark R. Chassin, MD, MPP, MPH

Member, Health Advisory Committee
MYERS-JDC-BROOKDALE INSTITUTE, JERUSALEM, ISRAEL

S. Yoon Choo, MD

Chair, National Committee
AMERICAN ASSOCIATION OF BLOOD BANKS

Linus T. Chuang, MD

President
METROPOLITAN GYNECOLOGIC CANCER SOCIETY OF NEW YORK

Bernard Cohen, MD

Treasurer
THE BARANY SOCIETY

Charlotte Cunningham Rundles, MD, PhD

President
US IMMUNODEFICIENCY NETWORK

Rand David, MD

Physician Champion Award
NEW YORK CITY HEALTH AND HOSPITALS CORPORATION

Kenneth L. Davis, MD

National Human Relations Centennial Leadership Award
AMERICAN JEWISH COMMITTEE

Man of the Year Award
GENETIC DISEASE FOUNDATION

Paul-Hoch Distinguished Service Award
AMERICAN COLLEGE OF NEUROPSYCHOPHARMACOLOGY

Chairman, Board of Governors
GREATER NEW YORK HOSPITAL ASSOCIATION

Trustee
THE NEW YORK ACADEMY OF MEDICINE

Liane Deligdisch, MD

Member, Contraceptive and Reproductive Health Branch
NATIONAL INSTITUTES OF HEALTH

Member
FRENCH ACADEMY OF MEDICINE (ACADEMIE NATIONALE DE MEDECINE)

Robert J. Desnick, MD, PhD

Keynote Lecturer
INTERNATIONAL CONGRESS OF INBORN ERRORS OF METABOLISM

Chair-elect
AMERICAN ASSOCIATION OF MEDICAL COLLEGES

Douglas Dieterich, MD

Physician of the Year Award
FLAVORS OF NEW YORK CULINARY GALA AND SPIRIT OF NEW YORK
(AMERICAN LIVER FOUNDATION)

Marcel Dijkers, PhD

President-elect
AMERICAN CONGRESS OF REHABILITATION MEDICINE

DIVINO



Celia M. Divino, MD
Member, Scientific Program Committee
AMERICAN COLLEGE OF SURGEONS

Institutional Representative
ASSOCIATION OF ACADEMIC SURGERY

Member, Education Committee
ASSOCIATION OF PROGRAM DIRECTORS IN SURGERY

Burton P. Drayer, MD
Member, Board of Directors
RADIOLOGICAL SOCIETY OF NORTH AMERICA

Michael Edye, MBBS
Board Member
SOCIETY OF AMERICAN GASTROINTESTINAL AND ENDOSCOPIC SURGEONS

Marilyn Fabbri, MD
Presidential Voluntary Service Award
US AGENCY FOR INTERNATIONAL DEVELOPMENT

Katherine Falk, MD
Distinguished Life Fellow
AMERICAN PSYCHIATRIC ASSOCIATION

Alex Federman, MD, MPH
Beeson Award
NATIONAL INSTITUTE ON AGING

Evan L. Flatow, MD
Member, Council on Education
AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS

Member, Publications Committee
AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS

Member, Education Committee
AMERICAN SHOULDER AND ELBOW SURGEONS

Member, Editorial Board
TECHNIQUES IN SHOULDER AND ELBOW SURGERY

Member, Special Emphasis Panel: Small Business Orthopaedics
NATIONAL INSTITUTES OF HEALTH

FEDERMAN



S. FRIEDMAN



FUSTER



Member, Skeletal Biology, Structure and Regeneration Study Section
NATIONAL INSTITUTE OF ARTHRITIS AND MUSCULOSKELETAL AND SKIN
DISEASES

Joel Forman, MD
Member, National Committee on Environmental Health
Committee Childhood Lead Poisoning Prevention
AMERICAN ACADEMY OF PEDIATRICS

Member, Lead and Pregnancy Work Group of Advisory
Committee Childhood Lead Poisoning Prevention
CENTERS FOR DISEASE CONTROL AND PREVENTION

Mary Fowkes, MD
Member, Federal and State Affairs Committee
COLLEGE OF AMERICAN PATHOLOGISTS

Alan Friedman, MD
President
VERHOEFF-ZIMMERMAN SOCIETY

Scott Friedman, MD
Senior Councilor, Governing Board
AMERICAN ASSOCIATION FOR THE STUDY OF LIVER DISEASES

Valentin Fuster, MD, PhD
Gold Medal Award
EUROPEAN SOCIETY OF CARDIOLOGY

Time Magazine Award (Spain)

Living Legend in Cardiovascular Medicine
UNIVERSITY OF OTTAWA, CANADA

The Maimonides Chair
EUROPEAN ACADEMY OF YUSTE

Honoris Causa
UNIVERSITY OF MADRID (COMPLUTENSE)

Walter Futterweit, MD
Member, Board of Directors
ANDROGEN EXCESS SOCIETY

Adolfo García-Sastre, PhD
Consultant, Avian Influenza Research Strategy Meeting/Workshop
CANADIAN NATIONAL CENTRE FOR FOREIGN ANIMAL DISEASE
CANADIAN FOOD INSPECTION AGENCY



GERMANO



GLADSTONE



HALL



HAUSMAN

HAZLETT



Bruce Gelb, MD
Vice Chair, Research Committee
AMERICAN HEART ASSOCIATION

Isabelle M. Germano, MD
Voting Member, Panel on Implantable Devices
FOOD AND DRUG ADMINISTRATION

James Gladstone, MD
Member, Council of Delegates
AMERICAN ORTHOPAEDIC SOCIETY FOR SPORTS MEDICINE

Julia Golier, MD
Distinguished Government Service Award
FEDERAL EXECUTIVE BOARD

Wayne A. Gordon, PhD
Vice President
AMERICAN CONGRESS OF REHABILITATION MEDICINE

Vice Chairman
BRAIN INJURY ASSOCIATION OF AMERICA

Stephen Gorfine, MD
President
NEW YORK SOCIETY OF COLON AND RECTAL SURGEONS

Donald Haas, MD
National Research Service Award
NATIONAL HEART, LUNG, AND BLOOD INSTITUTE

Simon J. Hall, MD
Member, Executive Committee, Section of Urology
THE NEW YORK ACADEMY OF MEDICINE

Member, Edwin Beer and
Ferdinand Valetine Fellowship Selection Committees
THE NEW YORK ACADEMY OF MEDICINE

Harry Haroutunian, PhD
Chair, Study Section, BDCN-A
NATIONAL INSTITUTE OF MENTAL HEALTH

Chair, Executive Committee, Autism Tissue Program
AUTISM SPEAKS

Michael R. Hausman, MD
Member, Council (Board of Directors)
AMERICAN SOCIETY FOR SURGERY OF THE HAND

Erin A. Hazlett, PhD
Chair, Developmental Disabilities, Stress and Aging Panel
NATIONAL INSTITUTE OF MENTAL HEALTH

Member, Merit Review Subcommittee for Mental Health
DEPARTMENT OF VETERANS AFFAIRS

Paul L. Hebert, PhD
John M. Eisenberg Article of the Year
HEALTH SERVICES RESEARCH

Robin Herbert, MD
Woman of the Year Award
WOMEN'S WORLD FORUM AWARDS

Special Merit Award
PUBLIC HEALTH ASSOCIATION OF NEW YORK CITY

Betsy Herold, MD
Member
COUNCIL FOR PEDIATRIC INFECTIOUS DISEASE SOCIETY

Daniela Herron, MD
Treasurer, Board of Executive Committees
THE FELLOWSHIP COUNCIL

Member, Board of Governors
SOCIETY OF AMERICAN GASTROINTESTINAL AND ENDOSCOPIC SURGEONS

Eric Hollander, MD
President
INTERNATIONAL SOCIETY FOR RESEARCH ON IMPULSIVITY AND
IMPULSE CONTROL DISORDERS

Chair, Research Planning Meeting, Obsessive-Compulsive
Related Disorders
DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS-V (DSM-V)

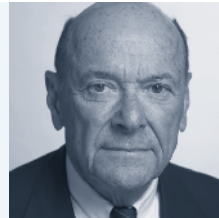
HURD



S. JACOBSON



KASE



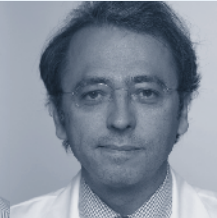
KLOTMAN



LAITMAN



LEVIN



LLOVET



LUBLIN



MANFREDI



MARGOLSKEE



MCGINN

Carol Horowitz, MD, MPH

Member, Disparities Task Force
SOCIETY OF GENERAL INTERNAL MEDICINE

Member, Disparities Round Table
INSTITUTE OF MEDICINE

Member
AETNA HEALTH DISPARITIES EXTERNAL ADVISORY COMMITTEE

Yasmin Hurd, PhD

Member, Intramural Board of Scientific Counselors
NATIONAL INSTITUTE ON DRUG ABUSE

Douglas A. Jabs, MD, MBA

Member, Membership Committee
SOCIETY FOR CLINICAL TRIALS

Member, Panel on Guidelines for the Prevention and Treatment
of Opportunistic Infections in HIV-Infected Persons
DEPARTMENT OF HEALTH AND HUMAN SERVICES /
INDIAN SELF-DETERMINATION ACT (DHHS/ISDA)

Julius Jacobson, MD

Alumnus of the Year Award
AMERICAN ASSOCIATION OF STATE COLLEGES AND UNIVERSITIES

Sheldon Jacobson, MD

Member
UNITED STATES MEDICAL LICENSING EXAMINATION STEP 3 COMMITTEE

Andy Jagoda, MD

Co-Chair, Clinical Policies Committee
AMERICAN COLLEGE OF EMERGENCY PHYSICIANS

Member, Executive Board, Brain Attack Coalition
NATIONAL INSTITUTE OF NEUROLOGICAL DISORDERS AND STROKE

Founding Member, Executive Board
FOUNDATION FOR EDUCATION AND RESEARCH IN NEUROLOGIC EMERGENCIES

Nathan Kase, MD

Chair
NEW YORK STATE BOARD OF MEDICINE

Craig Katz, MD

Nancy Roeske Award for Medical Student Education
AMERICAN PSYCHIATRIC ASSOCIATION

Gordon Keller, PhD

President
INTERNATIONAL SOCIETY FOR STEM CELL RESEARCH

Mary Klotman, MD

Member
ASSOCIATION OF AMERICAN PHYSICIANS

Beth Korn, MD

President
NEW YORK ALLERGY AND ASTHMA SOCIETY

Wyman Lai, MD

Chair-elect, Pediatric/Congenital Council Board
AMERICAN SOCIETY OF ECHOCARDIOGRAPHY

Jeffrey Laitman, PhD

Fellow
AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Member, Board of Directors

AMERICAN ASSOCIATION OF ANATOMISTS

Philip J. Landrigan, MD

Child Health Champion Award
US ENVIRONMENTAL PROTECTION AGENCY

Lifetime Achievement Award
CHILDREN'S HEALTH ENVIRONMENTAL COALITION

President-elect
COLLEGIUM RAMAZZINI

Member, Standing Committee on Risk Assessment
INSTITUTE OF MEDICINE

Paul Landsbergis, PhD, MPH, EdD

Member, "Work, Stress, and Health" Conference
NATIONAL ADVISORY COMMITTEE

Mark Lebwohl, MD

Presidential Citation
AMERICAN ACADEMY OF DERMATOLOGY

Book Award
SOCIETY OF AUTHORS AND THE ROYAL SOCIETY OF MEDICINE

Sam Moschella Lecturer
NEW ENGLAND DERMATOLOGIC SOCIETY

President, Medical Board
NATIONAL PSORIASIS FOUNDATION

Rosanne M. Leipzig, MD, PhD

Member, Board of Directors
AMERICAN BOARD OF INTERNAL MEDICINE

Chair, Geriatric Medicine Test Committee
AMERICAN BOARD OF INTERNAL MEDICINE

Member
US PREVENTIVE SERVICE TASK FORCE

Ihor R. Lemischka, PhD

Member, Board of Directors
INTERNATIONAL SOCIETY FOR STEM CELL RESEARCH

Stephen Levin, MD

Special Merit Award
PUBLIC HEALTH ASSOCIATION OF NEW YORK CITY

Steven R. Levine, MD

Member, Acute Advisory Board
NATIONAL STROKE ASSOCIATION

Josep Llovet, MD

Executive Secretary, Interim Governing Board
INTERNATIONAL LIVER CANCER ASSOCIATION

Yeh-Chi Lo, PhD

Board Member and Past President
RADIOLOGICAL AND MEDICAL PHYSICS OF NEW YORK SOCIETY

Fred Lublin, MD

Member, Board of Directors
NATIONAL MULTIPLE SCLEROSIS SOCIETY

Josef Machac, MD

Berson-Yalow Award, Northeast Chapter
SOCIETY OF NUCLEAR MEDICINE

Robert J. Majeska, PhD

New Investigator Research Award
ORTHOPAEDIC RESEARCH SOCIETY

James Manfredi, PhD

Chair, Molecular Biology Review Panel, Prostate Cancer
Research Program
US DEPARTMENT OF DEFENSE

Sue M. Marcus, PhD

Member
INTERNATIONAL STATISTICAL INSTITUTE

Robert Margolskee, MD, PhD

International Flavors and Fragrance Award for Outstanding Research
on the Molecular Basis of Taste
ASSOCIATION FOR CHEMORECEPTION SCIENCE

Bryan Markinson, DPM

Member, Board of Trustees, Council for Nail Disorders
AMERICAN ACADEMY OF DERMATOLOGY

Paul Martin, MD

Fellow
ROYAL COLLEGE OF PHYSICIANS OF LONDON

Josep Masci, MD

Presidential Voluntary Service Award
US AGENCY FOR INTERNATIONAL DEVELOPMENT

Thomas McGinn, MD, MPH

Co-Chair, National Health Policy Committee
SOCIETY OF GENERAL INTERNAL MEDICINE

Secretary/Treasurer
NATIONAL ASSOCIATION OF CHIEFS IN GENERAL INTERNAL MEDICINE

Loise M. McNamara, PhD

New Investigator Research Award
ORTHOPAEDIC RESEARCH SOCIETY

MEIER



MILLER



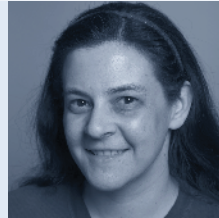
MLODZIK



MURPHY



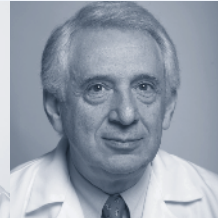
PFLEGER



RAGNARSSON



RAPAPORT



RAPP



RHODES



ROSE

**Yasmin Meah, MD**

President's Higher Education Community Service Honor Roll
EAST HARLEM OUTREACH PARTNERSHIP

Leonard Tow Humanism in Medicine Award
THE ARNOLD P. GOLD FOUNDATION

Humanism in Medicine Award
ASSOCIATION OF AMERICAN MEDICAL COLLEGES

Diane E. Meier, MD

Founders Award
BOARD OF DIRECTORS OF THE NATIONAL HOSPICE AND
PALLIATIVE CARE ORGANIZATION

The Project on Death in America (PDIA) Leadership Award
AMERICAN ACADEMY OF HOSPICE AND PALLIATIVE MEDICINE

Aaron Miller, MD

Chair, Medical Advisory Board
NATIONAL MULTIPLE SCLEROSIS SOCIETY

Member, Board of Directors
NATIONAL MULTIPLE SCLEROSIS SOCIETY

Harold A. Mitty, MD

Gold Medal Award
SOCIETY OF INTERVENTIONAL RADIOLOGY

Marek Mlodzik, PhD

Member, Inter-institutional Scientific Review Committee Panel
NATIONAL INSTITUTES OF HEALTH

Jacqueline Moline, MD, MSc

Fellow
THE NEW YORK ACADEMY OF MEDICINE

Director, New York/New Jersey Education and Research Center
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

John H. Morrison, PhD

MERIT Award
NATIONAL INSTITUTES OF HEALTH

Fellow
AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Fellow
NEW YORK ACADEMY OF SCIENCES

Chair, Committee on Government and Public Affairs
SOCIETY FOR NEUROSCIENCE

R. Sean Morrison, MD

Secretary, Executive Board
AMERICAN ACADEMY OF HOSPICE AND PALLIATIVE MEDICINE

International Representative, Research Committee
on Palliative and End-of-Life Care
CANADIAN INSTITUTES OF HEALTH

David Muller, MD

Chair, Medical Student Objectives Project—Health Literacy
AMERICAN ASSOCIATION OF MEDICAL COLLEGES

Barbara Murphy, MD

Chair, Program Committee
AMERICAN TRANSPLANT CONGRESS

Chair
AMERICAN SOCIETY OF TRANSPLANTATION

C. Warren Olanow, MD

President
MOVEMENT DISORDER SOCIETY

Treasurer
AMERICAN NEUROLOGICAL ASSOCIATION

Board Member
NATIONAL SPACE BIOMEDICAL RESEARCH INSTITUTE

Member, Scientific Advisory Board
MICHAEL J. FOX FOUNDATION

John Oropello, MD

William C. Dement Clinical Service Award for Outstanding
Contributions to Patient Care
CLINILABS SLEEP DISORDERS INSTITUTE, NEW YORK CITY

Member
INTERNATIONAL WORKING GROUP FOR ULTRASONOGRAPHY
IN CRITICAL CARE MEDICINE

Peter Palese, PhD

Robert Koch Prize in Berlin

Charles C. Shepard Science Award
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DENNIS S. CHARNEY, MD
DEAN OF MOUNT SINAI SCHOOL OF MEDICINE, EXECUTIVE VICE PRESIDENT FOR ACADEMIC AFFAIRS OF THE MOUNT SINAI MEDICAL CENTER, AND THE ANNE AND JOEL EHRENKRANZ PROFESSOR IN THE DEPARTMENTS OF PSYCHIATRY, NEUROSCIENCE, PHARMACOLOGY, AND SYSTEMS THERAPEUTICS

Message from the Dean

I am honored to present the Dean's Report. The accomplishments you will read about are emblematic of an academic medical center that strives for ongoing excellence in basic research, clinical research, patient care, and education.

Mount Sinai serves one of the most diverse and complex patient populations in the world. The unified leadership and streamlined organization of the Medical School and Hospital have long attracted researchers and clinicians who share a deep commitment to community involvement, intellectual exchange, and integrated teamwork.

This close collaboration has produced extraordinary results, and has earned Mount Sinai recognition from the cornerstones of society—government, foundations, national leaders and opinion makers, and the media. These accolades are not isolated milestones. They are the latest chapters in the ongoing work of some of the world's most renowned scientists and physicians.

This report, *The News of the Year – The Work of Decades*, offers an insight into the vision and methodology of some of the world's most widely respected scientists and physicians and the global impact of their achievements.

You will read how Drs. Peter Palese and Adolfo García-Sastre have transformed the way society approaches vaccine development and pandemics. Most recently, their groundbreaking research received the highest recognition from *The Lancet* and from the

This report, *The News of the Year – The Work of Decades*, offers an insight into the vision and methodology of some of the world's most widely respected scientists and physicians and the global impact of their achievements.

National Institutes of Health, which named Mount Sinai a Center of Excellence for Influenza Research and Surveillance.

World-famous stem cell biologist Dr. Ihor Lemischka has moved Mount Sinai into the forefront of stem cell research. Under his direction, the Black Family Stem Cell Institute is poised to be a major recipient of New York State's recently announced \$100 million commitment in 2008 to stem cell research.

When environmental health pioneer Dr. Philip Landrigan stood up for the heroes of 9/11 with the definitive study of their ongoing health problems, the public, Senator Hillary Clinton, and her congressional colleagues took note. His work continues to push the national standards.

At the Head and Neck Cancer Center, Dr. Eric Genden and his colleagues are making history and transforming the lives of patients by developing truly remarkable surgical techniques.

The vision of world-renowned cardiologist Dr. Valentin Fuster has launched Mount Sinai Heart, which is taking a truly global approach to the eradication of heart disease. The cardiology team also includes some of the nation's most innovative cardiothoracic surgeons whose pioneering surgical techniques are redefining the standards of mitral valve and aortic aneurysm care.

Dr. Angela Diaz and her colleagues at The Mount Sinai Adolescent Health Center have created a national model for kids in crisis. This year, The Atlantic Philanthropies has recognized their leadership role with a five-year, \$12 million grant to expand their work.

The East Harlem Health Outreach Partnership, founded and run by Mount Sinai medical students, received the Presidential Community Service Award. No other medical school was so honored.

Dramatic changes to medical education, led by Dr. David Muller, are already redefining the Mount Sinai experience. Our MD students will have more patient contact and responsibilities from the very beginning of their training by participating in innovative pilot programs that seamlessly combine technical training with compassionate caregiving.

The matriculating classes to our medical and graduate schools are among the most talented in the nation. As we continue to attract this caliber of students, we also plan to expand our highly competitive MD/PhD program so that one-quarter of our students will be pursuing dual degrees that focus on all three areas of academic medicine—research, teaching, and clinical care.

At the Graduate School of Biological Sciences, which was ranked third among top specialized research institutions, new thematically oriented PhD programs will be linked to the initiatives of specific research institutes under the leadership of Dr. John Morrison, Mount Sinai's new Dean of the Basic Sciences and the Graduate School of Biological Sciences.

Dr. Morrison, an acclaimed neuroscientist, received a prestigious National Institutes of Health MERIT Award from the National Institute on Aging for his work on brain cell neuroplasticity. His patient-centered approach is a model for the next generation of basic scientists.

We have enjoyed one of the most exciting chapters in the history of Mount Sinai School of Medicine. Our clinical and research faculty have contributed to this remarkable period. The accomplishments of our research faculty have been extraordinary, as reported by the level of National Institutes of Health funding, now in the top twenty in the United States. At the same time, the staff at the Faculty Practice Associates continue to lead in delivering state-of-the-art clinical care. Finally, the fiscal condition of the School is very strong.

We end the report with a financial overview of Mount Sinai School of Medicine and our Faculty Practice Associates, as well as a selection of faculty awards and honors. Our faculty accomplishments are pivotal to the success of this institution and reflect an exceptional level of productivity and progress. I congratulate all of my colleagues on their accomplishments.

I also want to take this opportunity to preview Mount Sinai's new strategic plan. It heralds the next stage in Mount Sinai's evolution as one of the world's outstanding medical institutions, and it will be published in its entirety in 2008.

On The Horizon: The Strategic Plan

It is particularly fitting to discuss a strategic plan so closely aligned with the future of translational research and patient care. Translational medicine is not a new concept at Mount Sinai. It lies at the heart of what prompted dedicated Mount Sinai physicians to create the Medical School in 1963.

The strategic plan is guided by an important principle. The Mount Sinai School of Medicine will invest in areas in which Mount Sinai can provide world-class leadership in research, education, and treatment, and that support Mount Sinai's mission of putting excellence in patient care at the center of its work.

At the heart of our plan is the establishment of twelve new research institutes. These institutes of excellence are designed to facilitate breakthrough science. Each institute brings together scientists from multiple departments with diverse but complementary areas of

expertise and will offer basic and clinical researchers the intellectual and physical space they need to do their very best work.

The institutes will be located across the Mount Sinai campus, strategically placed to bridge clinical care and laboratory research. Innovations in architecture and structural design will encourage clinicians and researchers from different fields to exchange ideas and make critical connections—in the lab, at the bedside, even over a cup of coffee.

The creation of these new institutes will also enhance the Mount Sinai educational experience. At the Graduate School of Biological Sciences, new thematically oriented PhD programs will be linked to the translational goals and work of specific research institutes. This approach focuses PhD students on medical problems and gives them access to clinical faculty from the very outset of their training.

Thus, introductory training in neuroscience may involve lectures about neurodegenerative diseases from doctors, patients, and family members of afflicted individuals, while the immunology program would have similar presentations dealing with progressive autoimmune disorders and organ transplant recipients. This orientation will help these basic scientists focus on medically important questions and further their understanding of the clinical impact of their work.

Plans are also under way to develop a new PhD program in Clinical Research, built upon the existing master's degree. This expansion will produce a cadre of professionals equipped to design, conduct, and direct clinical research, including the evaluation of new drugs and devices.

Mount Sinai will make certain that at the earliest possible opportunity, patients will have greater access to new treatments, drugs, and devices developed by our translational researchers.

A new information infrastructure is being constructed that will electronically connect all areas of the Medical Center, providing unprecedented opportunities for improving patient care, medical records, research, administration, and overall quality control.

We are recruiting new clinical and research faculty in all of our departments. During the next year, we will begin to construct a new world-class research building, the Center for Science and Medicine, which will increase our research capacity by about 30 percent. This facility will enhance our ability to make major discoveries that will lead to new treatments for the most serious of illnesses. In early 2008, we will open a new ambulatory care building, the Center for Advanced Medicine, which will further expand our ability to provide the very best care to our patients.

Taken as a whole, our strategic plan is a natural outgrowth of the tradition of excellence that has driven Mount Sinai since its founding. It is a privilege to work with our faculty, trustees, students, and friends of Mount Sinai to bring it to fruition.



CENTER FOR ADVANCED MEDICINE

The Institutes

BRAIN INSTITUTE

Investigations will focus on aging, neuropsychiatric and neurodegenerative disorders, recovery of function after traumatic brain injury or stroke, retraining of the brain, experimental therapeutics, genetics of neuropsychiatric disorders, and imaging. This highly collaborative research will involve faculty in the fields of basic neuroscience, clinical neurology, ophthalmology, psychiatry, and rehabilitative medicine, and will pursue avenues for the protection, enhancement, and restoration of brain function.

Interim Director*

John Morrison, PhD, Dean of Basic Sciences and the Graduate School of Biological Sciences and the W. T. C. Johnson Professor of Geriatrics and Adult Development

CANCER INSTITUTE

Researchers will aggressively pursue ongoing basic research, as well as biobehavioral and epidemiology programs that improve the diagnosis, prevention, and treatment of cancer. Clinicians will design more technologically advanced, minimally invasive surgical procedures designed to improve

the quality of life of cancer patients. The Cancer Institute will also work in close partnership with Mount Sinai's new Experimental Therapeutic Institute.

Interim Director*

George F. Atweh, MD, the Lillian and Henry M. Stratton Professor of Medicine, Chief of the Division of Hematology, and Professor of Gene and Cell Medicine

THE ZENA & MICHAEL A. WIENER CARDIOVASCULAR INSTITUTE

A multidisciplinary team of the world's leading cardiologists will explore the underlying mechanisms of heart disease and pursue new preventive approaches, diagnostic procedures, and treatments. Their work will complement the global clinical and research efforts currently under way at Mount Sinai Heart.

Director

Valentin Fuster, MD, PhD, Director of Mount Sinai Heart and of the Marie-Josée and Henry R. Kravis Center for Cardiovascular Health, and the Richard Gorlin, MD/Heart Research Foundation Professor

INSTITUTE FOR CHILD HEALTH AND DEVELOPMENT

Research efforts will focus on the cellular, molecular, environmental, and genetic mechanisms underlying asthma and allergies, diabetes and obesity, and neurodevelopmental and psychological disorders in children. Researchers will work closely with clinicians who are exploring new approaches to prevention and care.

Interim Directors*

Frederick Suchy, MD, the Herbert H. Lehman Professor and Chair of the Department of Pediatrics and Pediatrician-in-Chief at Mount Sinai School of Medicine

Philip J. Landrigan, MD, the Ethel H. Wise Professor and Chair of Community and Preventive Medicine

EMERGING PATHOGENS INSTITUTE

Building on Mount Sinai's internationally recognized work in influenza, HIV, hepatitis C, and other diseases, scientists will collaborate to study infectious diseases and the pathogens that cause them. The ultimate goal is to develop novel approaches to therapy and to the prevention of infectious disease.

Directors

Mary Klotman, MD, Chief of the Division of Infectious Diseases, the Irene and Dr. Arthur M. Fishberg Professor of Medicine (Infectious Diseases), Professor of Microbiology, and Associate Professor of Gene and Cell Medicine

Adolfo García-Sastre, PhD, Professor of Microbiology and Medicine (Infectious Diseases) and the Fischberg Chair in Medicine

IMMUNOLOGY INSTITUTE

The Institute will build on Mount Sinai's expertise in immunology, infectious diseases, autoimmunity, and transplantation to develop better immunosuppressive medication for use in organ transplantation, as well as stem cell transplant alternatives. Scientists will also work to discover new treatments for a range of diseases related to altered immune function.

Directors

Lloyd Mayer, MD, Professor of Medicine and Chief of the Divisions of Clinical Immunology and Gastroenterology

Sergio Lira, MD, PhD, Professor of Medicine



CENTER FOR SCIENCE AND MEDICINE

INSTITUTE FOR METABOLIC DISORDERS

Researchers will explore the relation between diabetes and obesity, with special attention paid to the role of genetics. Investigations will be geared toward uncovering better prevention and treatment strategies, examining factors that contribute to kidney failure and other complications of metabolic disease, and modifying risk factors for metabolic disorders.

Director

Derek LeRoith, MD, PhD, the Lillian and Henry M. Stratton Professor of Molecular Medicine, Chief of Endocrinology, and Professor of Medicine (Endocrinology)

INSTITUTE FOR EPIDEMIOLOGY, BIOSTATISTICS, AND PREVENTION

Scientists within the Institute will investigate the genetic and environmental causes of various diseases and study the effectiveness of their diagnosis and treatment. The specific areas that will be targeted are cardiovascular disease, kidney disease, diabetes, infectious diseases, psychiatric disease, and geriatric and perinatal epidemiology.

Director

David A. Savitz, PhD, the Charles W. Bludhorn Professor of International Community Medicine, and Professor of Community and Preventive Medicine and of Obstetrics, Gynecology, and Reproductive Science

EXPERIMENTAL THERAPEUTIC INSTITUTE

The Institute will provide a research infrastructure to accelerate translational research throughout Mount Sinai by conducting scientific and commercial assessments of promising research and technology, performing preclinical testing, and developing relationships with pharmaceutical and medical device companies. Building on these research discoveries, investigators will collaborate to develop new drugs, devices, and intellectual property.

Interim directors*

Srinivas (Ravi) Iyengar, PhD, the Dorothy H. and Lewis Rosenstiel Professor and Chair of Pharmacology and Systems Therapeutics, and Professor of Oncological Sciences and of Psychiatry

Savio L. C. Woo, PhD, Professor and Chair of Gene and Cell Medicine, and Professor of Genetics and Genomic Sciences and of Oncological Sciences

Ming-Ming Zhou, PhD, the Dr. Harold and Golden Lamport Professorship in Physiology and Biophysics, Professor and Chair of Structural and Chemical Biology, and Professor of Oncological Sciences and of Pharmacology and Systems Therapeutics

INSTITUTE FOR MOLECULAR IMAGING

State-of-the-art imaging technology is critical for translational and basic biomedical science, and also for advances in diagnostic medicine. It is a potent tool for precise diagnosis and for monitoring therapeutic intervention. Institute investigators will devote significant effort to developing the science of imaging, including the invention of new contrast agents and improved visualization technology.

Interim director*

Zahi A. Fayad, PhD, Director of the Translational and Molecular Imaging Institute and Professor of Radiology and Medicine (Cardiology)

CHARLES R. BRONFMAN INSTITUTE FOR PERSONALIZED MEDICINE

Scientists will collect and analyze patients' genetic data to

identify patterns that account for variability in disease susceptibility and progression and responses to therapy. The Institute will use this information to develop new diagnostics and therapeutics that can be tailored to address the needs of smaller, more precisely defined patient populations with shared genetic similarities.

Director

Erwin P. Bottinger, MD, the Irene and Dr. Arthur M. Fishberg Professor of Medicine (Nephrology) and Professor of Pharmacology and Systems Therapeutics

THE BLACK FAMILY STEM CELL INSTITUTE

The Institute will integrate research in embryonic stem cells, developmental biology, and adult stem cell biology. Researchers will direct efforts toward generating certain blood, heart, and liver cells from various kinds of stem cells and using these findings to develop new therapies for multiple diseases.

Director

Ihor R. Lemischka, PhD, the Lillian and Henry M. Stratton Professorial Chair of Gene and Cell Medicine

* Indicates that a nationwide search for a permanent director is in progress.



KENNETH L. DAVIS, MD
PRESIDENT AND CHIEF EXECUTIVE OFFICER OF THE MOUNT SINAI MEDICAL CENTER,
AND THE GUSTAVE L. LEVY DISTINGUISHED PROFESSORSHIP

Message from the President and Chief Executive Officer

This is a time of unprecedented growth at Mount Sinai. Financially, The Mount Sinai Medical Center had an extraordinary year in 2006 and that trend continues for both the Hospital and the School in 2007.

In 2006, the Hospital generated its largest operating surplus ever: \$51.1 million as compared with \$35.2 million in 2005 and a loss of \$31.4 million in 2004. Combined with revenue cycle efforts, our positive performance has resulted in the highest cash balances in our history. In fact, the Hospital's cash balances have more than tripled in the past three years.

The School, too, has improved its financial footing. The endowment has reached an all-time high and progress is being made on increasing capacity for research. As one of the premier academic medical centers in New York, the Hospital, including our Queens campus, discharged nearly 65,000 patients in 2006, with total revenue of over \$1.3 billion for the Hospital and \$2.3 billion for the Medical Center.

Through conservative budgeting and tight management, we have been able to exceed our budget projections for the past two years.

The outlook for the coming year continues to be positive. This view is shared by the majority of rating agencies, who have rewarded our efforts and recognized our future potential by increasing the Hospital's credit rating by several points and awarding the School a high-quality investment grade rating.

At Mount Sinai, the seamless connection between the Hospital and the School, as well as integrated leadership, are central to our success.

At Mount Sinai, the seamless connection between the Hospital and the School, as well as integrated leadership, are central to our success. In 2007, I was privileged to announce that my colleague Dennis Charney was assuming the role of Dean of Mount Sinai School of Medicine, after having served so successfully as both Dean for Research and Dean for Academic and Scientific Affairs.

Dr. Charney has created a fertile environment for breakthrough work by revitalizing and reinforcing Mount Sinai's greatest strengths: accelerating the pace at which research moves from the bench to the bedside; improving cooperation across disciplines; and enhancing the integration of the research, clinical, and academic missions.

Our recent accomplishments at the School are a tribute to Dr. Charney's leadership and to the quality of our faculty. In many areas, our students are taught by professors who have, quite literally, written the book on the subjects at hand.

Furthermore, although the National Institutes of Health's budget went up by only 2 percent last year, Mount Sinai's federal research grants increased by 12 percent. We are now ranked as twentieth in the country among medical schools by the NIH, up from twenty-fifth in the prior year. And 2007 looks like another banner year for our research program. This is quite an achievement for a stand-alone medical school.

Over the next few decades, we anticipate that medical science will experience vast breakthroughs. Our size, our unified leadership, our culture, our heritage, and the quality of our people have positioned Mount Sinai to take advantage of this revolution in the biological sciences.

It is an honor and a privilege to lead this impressive and dedicated group of clinicians, researchers, and educators who have chosen to pursue their work here at The Mount Sinai Medical Center.



PETER W. MAY
CHAIR OF THE BOARDS OF TRUSTEES

Mount Sinai's success story is a result of a major collective effort by faculty and staff to improve every aspect of our work.

Message from the Chair of the Boards of Trustees

As Chair of the Boards since 2002, I am especially proud to report on the tremendous progress that Mount Sinai has made over the past five years in its efforts to achieve significant improvements in its fiscal health. Indeed, both the Hospital and School now generate operating surpluses after several years of having recorded significant financial losses.

The School's finances have improved by more than \$161.3 million since fiscal year 2002. In 2006 alone, our endowment showed a record increase, thanks to the generosity of donors and excellent management by our investment committee.

Mount Sinai's success story is a result of a major collective effort by faculty and staff to improve every aspect of our work. Last year, our doctors saw a record number of patients. We recruited outstanding new physicians. We renewed and reinvigorated our relationships with our voluntary staff. We redoubled our commitment to develop targeted affiliations with community hospitals and enhanced our revenue cycle efforts. All of these initiatives have resulted in operating surpluses and healthy cash balances.

Mount Sinai's President and CEO, Kenneth L. Davis, MD, has spearheaded these efforts and has led his management team to remarkable achievements that were unimaginable just a few short years ago. Not surprisingly, others have taken note. In several recent stories, the media have profiled Mount Sinai's strong position and

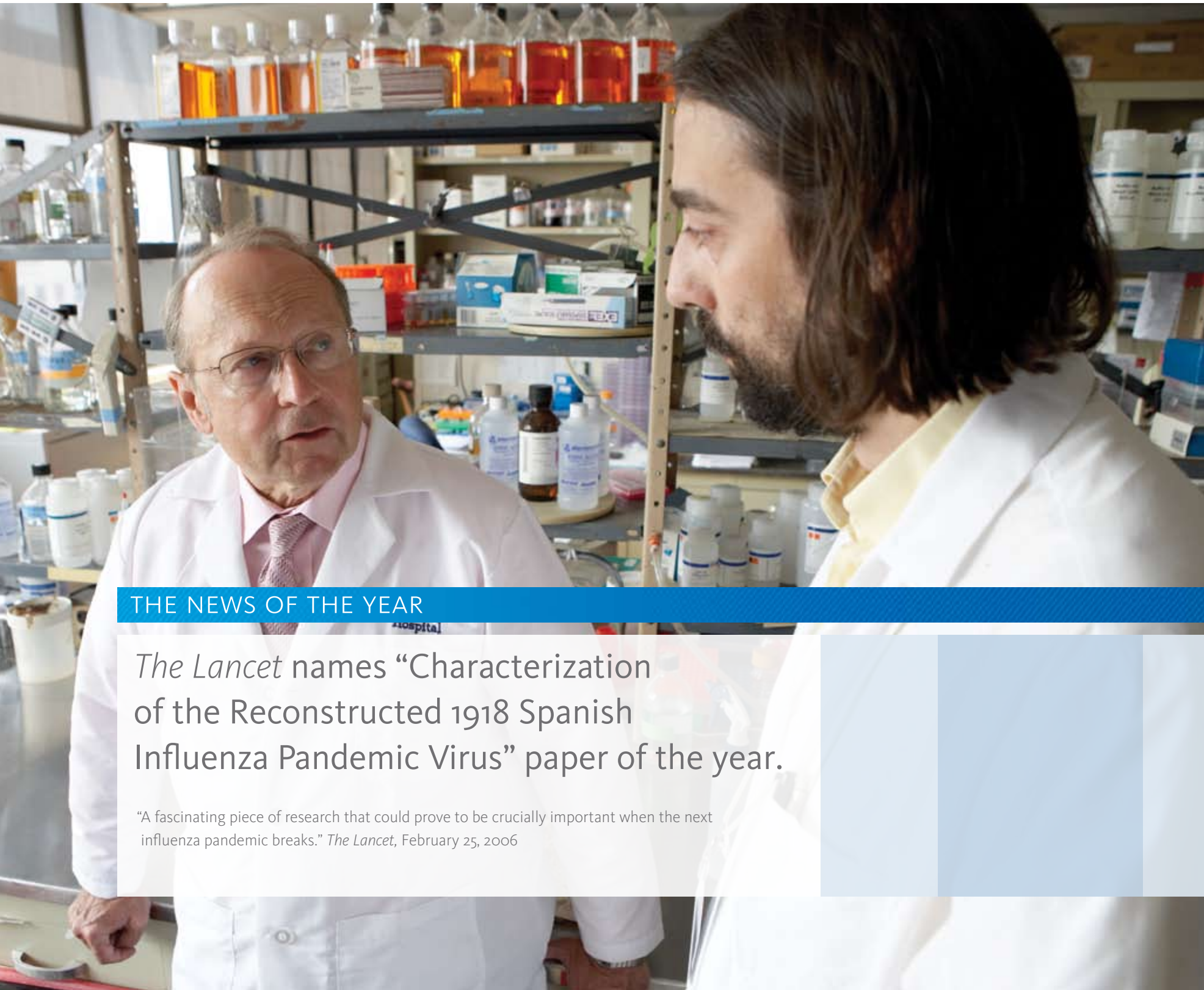
Dr. Davis's strategy for success. In addition, the Hospital and the School have each received upgrades from the financial ratings agencies.

We are growing at every level. Under the forward-looking leadership of Dr. Dennis Charney, the Medical School has invested \$179 million this year in projects to support education, research, and patient care initiatives. We are undertaking a major expansion of our facilities in order to meet growing demand. We are completing a new ambulatory care building, the Center for Advanced Medicine, that will bring nearly 170,000 new square feet of space into the Medical Center.

In keeping with Mount Sinai's commitment to translational medicine, we will soon break ground on the construction of our new Center for Science and Medicine, a 470,000-square-foot research facility that will accelerate the pace at which research discoveries lead to state-of-the-art patient care. The Center will bring new therapeutics, new diagnostics, and a better understanding of the causes of disease.

We also are about to embark on a capital campaign that will fuel Mount Sinai's comprehensive strategic plan. Over the next ten years we will continue to recruit outstanding talent; build state-of-the-art facilities and a technology infrastructure that serves the needs of researchers, clinicians, and patients; create a curriculum that trains translational scientists and physicians; and develop research institutes that allow us to bring medical breakthroughs to patient care as quickly as possible.

Our plans are ambitious, but based on the outstanding performance of the Mount Sinai community, I have no doubt that we will achieve our goals. I am privileged to serve as Chair of the Boards and participate in our exciting future.



THE NEWS OF THE YEAR

The Lancet names “Characterization of the Reconstructed 1918 Spanish Influenza Pandemic Virus” paper of the year.

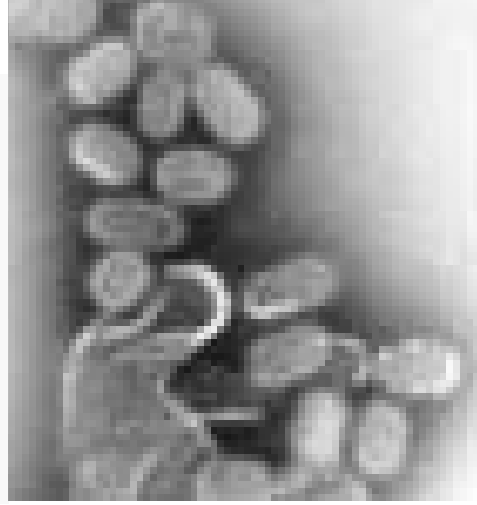
“A fascinating piece of research that could prove to be crucially important when the next influenza pandemic breaks.” *The Lancet*, February 25, 2006

THE WORK OF DECADES

Now that we can better understand the mechanisms and the virulence of these pathogens, we can work from a position of strength and produce better vaccines and antivirals.

– PETER PALESE, PHD
The Horace W. Goldsmith Professor and Chair of Microbiology

PETER PALESE, PHD (LEFT), AND ADOLFO GARCÍA-SASTRE, PHD (RIGHT)



Insights into the Immune System

Understanding viral behavior is one piece of a complex biological puzzle, and understanding how the immune system responds to viruses is another critical piece. That is where Thomas M. Moran, PhD, Professor of Microbiology, fits in. He worked with Drs. Palese and García-Sastre to study how the immune system reacted to the 1918 virus and other influenzas. “Immunologists see things from a different angle than virologists,” Dr. Moran explained, “so through this collaboration, we all gained valuable insight into the antagonistic relationship between immunity and infection.”

Drs. Moran, Palese, and García-Sastre looked at the different components that constituted the immune system response to viral infections. A gene in the influenza virus called NS1 blocks the release of interferon, glycoproteins released by the immune system that help fight infection. What the researchers discovered was that NS1 also interferes with dendritic cell stimulation, which in turn, prevents T cells from getting the correct molecular message. “NS1 is crippling the immune response on multiple levels,” Dr. Moran explained. “The T cells are getting a skewed message instead of the correct one, and this all leads to an impaired immune reaction. The immune system cells are confused because NS1

is tinkering with the dendritic cell communication.”

Research will continue to focus on the dendritic cells and their critical role in immune protection. “This is a very, very key group of cells with regard to how the immune system interacts with pathogens,” Dr. Moran said. But Dr. Moran noted that even when scientists do find new molecular pathways to prevent infection from interfering with immunity, viruses will mutate again. “The viruses are always ahead of us, and we are always trying to play catch-up.”

Changing the Landscape

In 1999, Dr. Peter Palese, Professor of Medicine (Infectious Diseases), and his colleague Adolfo García-Sastre, PhD, Professor of Microbiology and Medicine (Infectious Diseases), the Fischberg Chair in Medicine, and Co-Director of the Emerging Pathogens Institute, developed reverse genetics, a technique that enabled them to recreate the influenza virus from recombinant DNA. The work paved the way for the insertion of foreign genes into these and other related viruses, creating any desired mutation and the generation of viruses that can function as better vaccines. “In order to change an RNA virus, we had to go back to DNA, and that’s why it’s referred to as reverse genetics,” said Dr. Palese.

Without reverse genetics, influenza virus vaccine development is a cumbersome and rather inefficient procedure. Although influenza virus vaccines have been available for over sixty years, the length of time required for current methods of production is too long for effective response to a strain as virulent and fast as the ones that have caused pandemics.

Reverse genetics circumvents the previously existing slow methodology for influenza virus vaccine production and allows investigators to custom build a virus to meet their needs. The reverse genetics method is faster and provides a means for altering the virus for markers that allow safer handling. Custom building viruses for vaccines also facilitates greater quality control by reducing genetic variation in production.

The technique also makes practical the idea of developing a library of vaccines against a broad spectrum of avian viruses that have the potential to jump into humans and initiate an influenza virus pandemic. With such a stockpile, each year’s production of vaccines could begin as soon as circulating strains are identified.

PREPARING FOR THE INEVITABLE

Each year the World Health Organization (WHO) works with health agencies in many countries to identify the strain or strains of influenza spreading in human populations. Once isolated, development of a vaccine begins. The slowness of the process is problematic even under the best of conditions, but should a particularly virulent strain such as the one that caused the pandemic of 1918 arise, delays in vaccine production could be catastrophic.

Based on historical patterns, the WHO estimates that influenza pandemics can be expected to occur three to four times per century. A new pandemic is considered inevitable. “The speed of vaccine development will be particularly crucial when the next pandemic arrives,” said Dr. Palese.

THE LESSONS OF 1918

“The 1918 Spanish flu virus continues to help us understand all flu viruses. What molecular mechanism does it utilize to be so virulent, so successful? What is the gene that holds the key to influenza transmission?” asked Dr. García-Sastre.

In 2006, the study of the 1918 virus continued with an analysis of mice infected with the reconstructed virus. The study revealed that although the infection triggered a very strong immune system response, the response failed to protect the animals from severe lung disease and death. Members of the Mount Sinai research team, many of whom had collaborated on the reconstruction of the 1918 influenza virus, wanted to know why the virus, which killed 20 to 40 million people, was so lethal. In the study, researchers infected one group of mice with the 1918 virus influenza and the second group with benign human influenza. The animals infected with the more benign viruses did not develop an immune response that was as strong, and fewer

National Institutes of Health Establishes Center of Excellence for Influenza Research at Mount Sinai

The National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health (NIH), has announced that Mount Sinai School of Medicine is a new Center of Excellence for Influenza Research and Surveillance. NIAID is awarding \$23 million per year for seven years to establish six Centers of Excellence for Influenza Research and

Surveillance around the country. Mount Sinai will help expand NIAID's influenza research as the only recognized Center of Excellence for Influenza Research and Surveillance in New York City.

"We look forward to building upon our past research on the influenza virus, helping the federal government research findings in order to control and weaken the impact of influenza and stop the danger of a deadly influenza pandemic," said Dr. García-Sastre.

The Mount Sinai Center of Excellence for Influenza Research and Surveillance has been named Center for Research in Influenza Pathogenesis (CRIP). Dr. García-Sastre and his team will continue to conduct molecular studies to identify influenza virus genes associated with the development of disease, the adaptability of flu viruses in birds and mammals, and the transmission of flu viruses to different hosts.

Based on historical patterns the WHO estimates that influenza pandemics can be expected to occur three to four times per century, a new pandemic is considered inevitable. "The speed of vaccine development will be particularly crucial when the next pandemic arrives," said Peter Palese.

of the animals died. Cellular genes were individually investigated from lung tissue samples taken from the infected mice, enabling the researchers to trace the immune response to each of the infections.

Christopher F. Basler, PhD, Assistant Professor of Microbiology, who is collaborating with Drs. Palese and García-Sastre, explained some fundamental questions raised by the study. "Did the very strong immune system response contribute to their death or was the immune system too overwhelmed to fight the infection? By understanding the trajectory of this particular infection, we're gaining insight into how to create more targeted therapies for different types of influenza virus strains and infections like avian flu."

BEYOND INFLUENZA

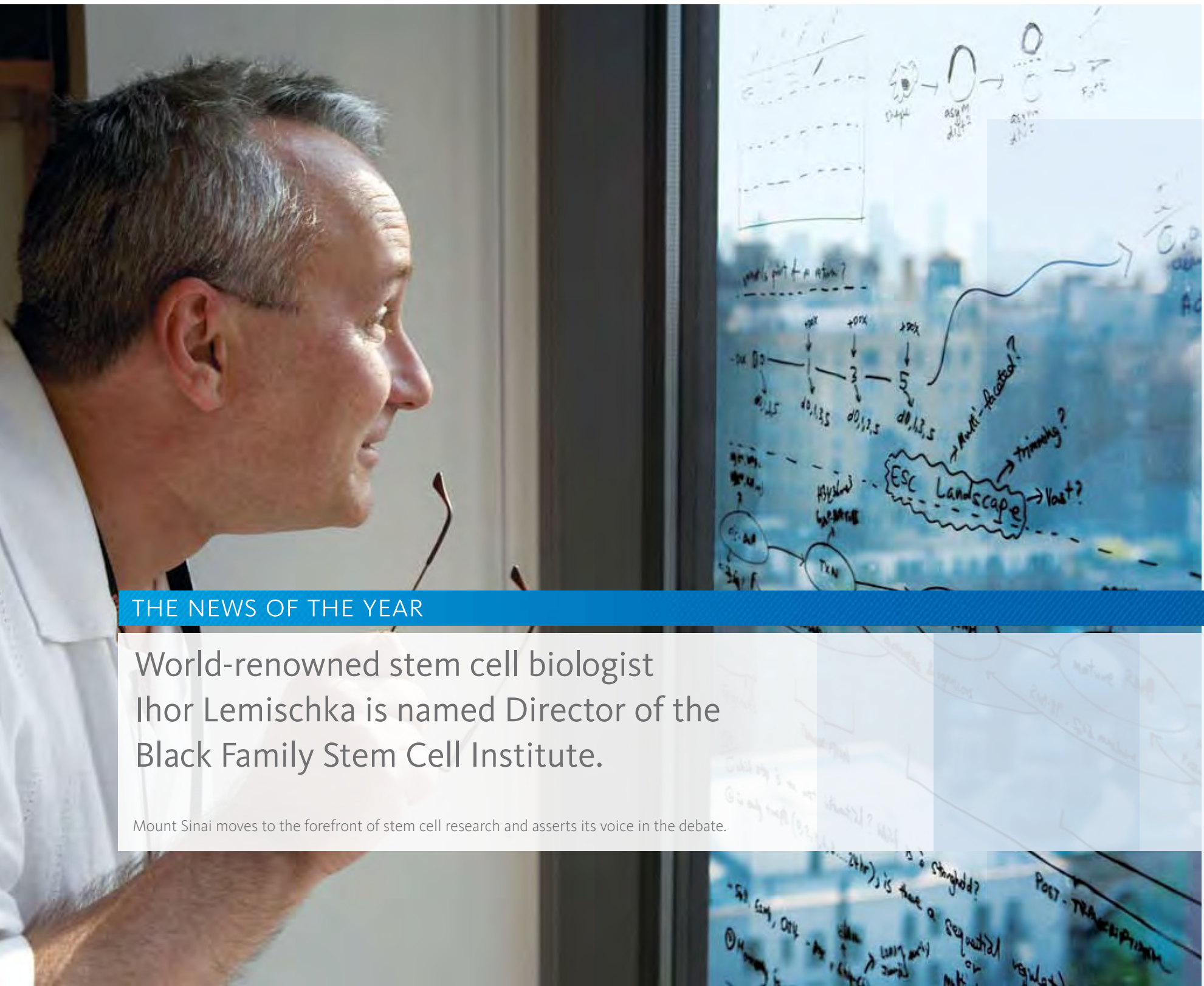
Reverse genetics allows scientists to push into new frontiers and respond to pathogens more rapidly than ever before. Today, Mount Sinai researchers are using this technology looking at influenza, but the bigger picture also includes other emerging pathogens, from avian flu to HIV and to future antibiotic-resistant strains. "At Mount Sinai, our work on the 1918 virus has paved the way for the evaluation of emerging



DR. ADOLFO GARCÍA-SASTRE IN HIS LAB

and as yet unknown pathogens. We are better prepared than ever before, but to some extent we will always have to react rather than anticipate new epidemics. Working in this area is a bit like predicting the stock market. Nature is probably more imaginative than we would like her to be," said Dr. Palese.

"Characterization of the Reconstructed 1918 Spanish Flu Influenza Pandemic Virus"
 Tumpey TM, Basler CF, Aguilar PV, Zeng H, Solórzano A, Swayne DE, Cox NJ, Katz JM, Taubenberger JK, Palese P, García-Sastre A, *Science*, 2005 October 7; 310 (5745): 77-80.



THE NEWS OF THE YEAR

World-renowned stem cell biologist Ihor Lemischka is named Director of the Black Family Stem Cell Institute.

Mount Sinai moves to the forefront of stem cell research and asserts its voice in the debate.

IHOR R. LEMISCHKA, PHD, THE LILLIAN AND HENRY M. STRATTON PROFESSORIAL CHAIR OF GENE AND CELL MEDICINE, READS A DIAGRAM ABOUT HOW STEM CELLS MAY DIFFERENTIATE.

THE WORK OF DECADES

In the 21st century, all of the major clinical breakthroughs will be impacted by stem cell research.

– IHOR R. LEMISCHKA, PHD
Director of the Black Family Stem Cell Institute and the Lillian and Henry M. Stratton Professorial Chair of Gene and Cell Medicine



DR. LEMISCHKA'S LAB
WILL EXPLORE CENTRAL
BIOLOGY QUESTIONS.

At Mount Sinai, clinicians and researchers already have a tradition of collaboration, so culturally and professionally they are attuned to where medicine is headed.

— DR. IHOR R. LEMISCHKA

The Epitome of Translational Medicine

In July 2007, internationally renowned stem cell biologist Dr. Lemischka came to Mount Sinai from Princeton University, where he spent twenty-one years at the forefront of stem cell research. Dr. Lemischka noted, “Mount Sinai epitomizes translational medicine, so this was the ideal setting to pursue stem cell therapy. After over twenty years of working in a laboratory setting, I am particularly excited about working closely with clinicians.”

The arrival of Dr. Lemischka, who will be Director of the Black Family Stem Cell Institute, signals a major leap in stem cell research for Mount Sinai. In the 1980s, Dr. Lemischka was one of the first to find that a single blood-producing stem cell in bone marrow (hematopoietic stem cell) could rebuild all blood cell types in a mouse whose blood cells had been destroyed. Since then, working with both adult and embryonic stem cells, he has studied stem cell behavior and activity and patented techniques to isolate stem cells.

Dr. Lemischka's work has focused on stem cell mechanisms—for example, how embryonic stem cells can develop to form a variety of cell types, including muscle, nerve, and other tissues.

PURSUING THE FUNDAMENTAL QUESTIONS

At Mount Sinai, Dr. Lemischka's lab will continue to explore central biology questions. “For example, what makes a stem cell a stem cell?” he asked. “Why does one stem cell grow into a nerve cell and another into a muscle cell? We call these

‘cell fate decisions.’ How are these decisions made? Is there a way to manipulate these decisions that would benefit patients? That's at the crux of what I'll be doing at Mount Sinai.”

“When we transplant a single stem cell from one mouse into another, that single stem cell is capable of finding its way to the right microenvironment, establishing itself, and initiating communication and growth,” he said. “How does it know to do that? That's what we want to decode.”

New findings by stem cell biologists are influencing the current understanding of disease, including cancer, explained Dr. Lemischka. Recent research suggests that some types of cancers, such as leukemia, may contain a stem cell component that makes it difficult to eradicate the cancer.

THE BLACK FAMILY STEM CELL INSTITUTE: A MODEL FOR COLLABORATION AND LEADERSHIP

“I believe stem cells are going to play a part in virtually all of the major medical breakthroughs of the twenty-first century, and I see no reason why the Black Family Stem Cell Institute can't lead the way in stem cell research, nationally and internationally,” said Dr. Lemischka. “At Mount Sinai, clinicians and researchers already have a tradition of collaboration, so culturally and professionally they are attuned to where medicine is headed.”

Founded in 2005 with a generous gift from Leon D. Black, the Institute encourages interdisciplinary research projects between basic and applied researchers. For example, Mount Sinai scientists are studying how implants of stem



DR. IHOR LEMISCHKA WITH LAB ASSISTANTS XONIA CARVAJAL VERGARA (LEFT) AND ANA SEVILLA HERNANDEZ (RIGHT)

cells grow when injected into live animals. As part of this effort, investigators from the Cardiovascular Research Institute and the Cardiovascular Imaging Center are learning how to phototag stem cells so that they can be monitored in these animals.

In another area, Mount Sinai faculty are studying how to treat astrocytoma, a type of brain tumor. Using the observation that certain types of stem cells, when injected into animals, will migrate to and remain in astrocytomas, researchers are devising ways to make these astrocytoma-seeking stem cells into killer cells that destroy the tumors.

The liver transplantation group, which treats people with fibrotic livers, is working to develop liver stem cell therapy that could supplant the use of donor livers. This would greatly relieve the liver transplant service, which depends on unpredictable supplies of donor organs to treat a need that is expected to grow with the increasing incidence of hepatitis C.

Stem cell research is applicable to virtually every area of research since most types of tissues do have stem cells. As scientists explore how to harness stem cells in the heart, the brain, and so many other areas, Mount Sinai's institute structure makes collaboration a fundamental part of the investigative process.

HOW FAR CAN WE GO? HOW FAST CAN WE MOVE?

The promise of stem cells is virtually limitless, but developing new therapies is also dependent on a fundamental understanding of particular conditions and how they affect patients at every stage of disease progression. Again, collaboration is key. "Medical science understands Parkinson's well enough to suggest how stem cells could potentially be utilized, so we're much closer to being able to develop

therapies. On the other hand, we don't yet understand nearly enough about the mechanisms of Alzheimer's disease to accomplish anything meaningful with stem cells. But that could change very rapidly if clinicians and researchers help each other better understand how the disease works. We'll make the best progress for our patients if we are both optimistic and strategic about how we focus our efforts. Part of being a leader is helping set realistic goals for the medical community and for society in general. And then always pushing further once that goal is attained," said Dr. Lemischka.

NEW YORK BECOMES A NATIONAL LEADER

This year, New York State has made a substantial commitment to funding stem cell research. This effort joins states such as California, New Jersey, and others that have also made commitments to support stem cell research.

As Dr. Lemischka explained, "This gives us tremendous additional resources. It also gives us as scientists the added responsibility to make sure that our lawmakers have accurate information about stem cell research. We must ensure that the inevitable debate over stem cells is conducted on a higher level than it has been in the past. And we must also better educate the general public about the real promise that stem cells hold for our future as a society. We need to be as enthusiastic and skilled about explaining our work as we are about doing it."



THE NEWS OF THE YEAR

On September 5, 2006, Mount Sinai researchers released findings from the World Trade Center Worker and Volunteer Medical Screening Program.

Today's findings lay out a more complete picture of what has happened to the men and women who answered the call.

— Senator Hillary Rodham Clinton, at the press conference at Mount Sinai

THE WORK OF DECADES

I am always mindful of the axiom of my predecessor at Mount Sinai, the late Professor Irving J. Selikoff, the father of occupational medicine in the United States, who said that “statistics are people with the tears wiped off.”

— PHILIP J. LANDRIGAN, MD
The Ethel H. Wise Professor and Chair of Community and Preventive Medicine, Professor of Pediatrics

(LEFT TO RIGHT) ROBIN HERBERT, MD, PHILIP J. LANDRIGAN, MD, AND JACQUELINE MOLINE, MD, REVIEW AN X-RAY OF THE LUNGS.

Our 9/11 work lies at the intersection of Mount Sinai's expertise in environmental medicine and our fundamental commitment to serve the community.

— DR. PHILIP J. LANDRIGAN

Co-founder of the Centers for Disease Control's National Center for Environmental Health

Starting in the 1970s, Dr. Landrigan made the world aware of the harmful health effects of asbestos, pesticides, lead, and PCBs, long before anyone thought them toxic. He was a co-founder of the Center for Disease Control's National Center for Environmental Health. His research helped catalyze the U.S. government's phase-out of lead from gasoline and paint. He chaired a National Academy of Sciences Committee on Pesticides and Children's Health, whose report

secured passage of the major federal pesticide law in the United States, the Food Quality Protection Act of 1996, the first federal environmental law to contain specific protections for infants and children. His work as Senior Adviser to the Environmental Protection Agency was instrumental in helping to establish the EPA's Office of Children's Health Protection. More recently, many agencies — notably the United Nations World Health Organization, the EPA, and the CDC — have consistently turned to Dr. Landrigan for his expertise.

Standing Up for Those Who Stood Up for the Nation

The roots of the World Trade Center Worker and Volunteer Medical Screening Program go back to 1986. At that time, Dr. Landrigan, who had just arrived at Mount Sinai from the Centers for Disease Control and Prevention, saw critical need to establish a clinical center of excellence in occupational medicine in New York City. He persuaded the New York State Legislature to appropriate the necessary funding, and he and his colleagues launched the Irving J. Selikoff Center in Occupational and Environmental Medicine. The World Trade Center medical programs exist today because Dr. Landrigan and his team had the foresight to build this unique base.

Early in the morning of September 13, 2001, less than forty-eight hours after the attacks on the World Trade Center, Dr. Landrigan and his team in the Selikoff Center began organizing the occupational and environmental medicine response to 9/11. They tracked occupational exposures at Ground Zero, and they tried to anticipate the likely patterns of disease in those who gave so heroically to the World Trade Center. They created a comprehensive medical monitoring program to assess both physical and mental health. Six years after the disaster, this program has helped thousands of World Trade Center first responders and site cleanup workers, and scientific findings from the program are helping lawmakers in Washington on behalf of these brave men and women, many of whom will need ongoing expert medical care.

The program's landmark study, initiated in 2003 with philanthropic funding, has provided over 21,000 medical and social work services to more than 15,000 WTC responders with persistent illnesses. The study showed that about 70 percent of responders suffer from respiratory problems. These responders have also had upper

respiratory illnesses (84 percent), such as sinusitis, laryngitis, and vocal cord dysfunction; lower respiratory disorders (47 percent), such as asthma and "World Trade Center cough"; psychological disorders (37 percent), such as post-traumatic stress disorder and chronic depression; and musculoskeletal problems (31 percent), often from injuries that occurred while working on the smoking pile at Ground Zero.

These results highlight the continuing need for both health monitoring and treatment programs for WTC responders. As Dr. Landrigan explained, "Our 9/11 work lies at the intersection of Mount Sinai's expertise in environmental medicine and our fundamental commitment to serve the community."

And the work will continue for years to come. "We will be monitoring our heroes for the foreseeable future," said Dr. Landrigan. "We do not yet know whether these individuals are at risk for certain types of cancers or other illnesses. We will need to do a daily scanning of the horizon to see if anything new is arising. We cannot predict what will happen to these people because there is no precedent for this. But we are watching over all of them, every single one."

LEADING INVESTIGATOR OF THE NATIONAL CHILDREN'S STUDY

Dr. Landrigan, who is the Director of the Mount Sinai Center for Children's Health and the Environment, is also leading the landmark National Children's Study, the largest long-term study of children's health ever conducted in our country. The study's goal is to produce a scientific blueprint to guide treatment and prevention of the major diseases of American children—asthma, autism, attention deficit disorder, birth defects, cancer, and diabetes. Although the study is ongoing, it has already produced very tangible results.

The Role of Epidemiology in Environmental Protection

As Director of Mount Sinai's new Institute for Epidemiology, Biostatistics, and Prevention, David A. Savitz, PhD, is working toward fully integrating epidemiology into the fabric of clinical research at Mount Sinai.

Under Dr. Savitz's leadership, epidemiology is a tool that can be used to bridge the basic sciences and genetics with applications for real people in everyday life. Dr. Savitz is also the Charles W. Bluhdorn Professor of International Community Medicine, and Professor of Community and Preventive Medicine and

of Obstetrics, Gynecology, and Reproductive Science.

A dedicated and award-winning scientist, Dr. Savitz is at the forefront of a burgeoning interest in translational research and disease prevention that calls for an increased epidemiological focus. His research focuses on reproductive, environmental, and cancer epidemiology. Dr. Savitz translates complex epidemiological data and makes them applicable to everyday life. His studies have examined magnetic fields and their role in cancer, the impact that disinfection by-products in drinking water have on fetal health, and the relation between air pollution and preterm birth. One of Dr. Savitz's areas of

expertise is the study of environmental factors, including tobacco and cocaine use, exercise, and diet, and their influences on premature childbirth.

Dr. Savitz's expertise in environmental, maternal, and fetal health is nationally renowned. He is a former President of the Society for Pediatric and Perinatal Epidemiologic Research and the Society for Epidemiologic Research. Before joining the Mount Sinai faculty two years ago, Dr. Savitz was the Chair of the Department of Epidemiology at the University of North Carolina School of Public Health in Chapel Hill.



(LEFT TO RIGHT) DR. PHILIP J. LANDRIGAN, DR. ROBIN HERBERT, AND DR. JACQUELINE MOLINE DISCUSS THEIR RESEARCH.

“The finding we came up with two years ago, that prenatal exposure to certain pesticides causes small head circumference in newborn infants, is a prescription for action. Small head circumference reflects delayed brain growth. That’s exactly the kind of thing we anticipate that we’ll be finding throughout the National Children’s Study. And, as soon as we find it, we’ll move on to doing all that we can. For example, as soon as we observed the impacts of pesticides on brain development, we worked closely with the EPA to limit residential exposures to two of the most toxic materials—chlorpyrifos and diazinon. And as the study proceeds, we’ll give advice to patients, we’ll give advice to city health departments, we’ll write policy, we’ll change the way in which we medicate kids with asthma, whatever is appropriate,” said Dr. Landrigan.

“There’s no question that in any of these big studies, such as the World Trade Center Medical Program, the National Children’s Study, the asthma studies, or the obesity studies that we’ve done for the National Institute for Child Health and Human Development, that important new findings will emerge at every step as we proceed. In the first few years, for example, I expect that we will gain new knowledge about the preventable causes of pregnancy loss and birth defects. A few years later, we will generate a wealth of information about the environmental causes and the prevention of learning disabilities. And in the years after that we will be learning what exposures cause cancer, diabetes, and schizophrenia. In other words, we won’t have to wait twenty-one years in the National Children’s Study to develop valuable leads to treatment and prevention. The gains for human health will be incalculable.”

“The National Children’s Study is truly the most ambitious study of child health that’s ever been proposed for this county,” explained Dr. Landrigan. “It is a legacy from our generation to the generations who will follow. And Mount Sinai is in the forefront.”

Congressional and Other Testimony

Robin Herbert, MD

Presented testimony before the US House of Representatives Energy and Commerce Committee Health Subcommittee, “Answering the Call: Medical Monitoring and Treatment of 9/11 Health Effects,” September 18, 2007.

Presented testimony before the Senate Health, Education, Labor, and Pensions Committee, “Hearing on the Long-Term Health Impacts from September 11: A Review of Treatment, Diagnosis, and Monitoring Efforts,” March 21, 2007.

Presented testimony before the Congressional Subcommittee on Government Management, Organization, and Procurement, “Hearing on 9/11 Health Effects: Federal Medical Monitoring and Treatment of Residents and Responders,” February 28, 2007.

Presented testimony at the Food and Drug Administration’s Center for Drug Evaluation and Research Seminar Program on the public health response to the WTC disaster, February 7, 2007.

Presented testimony before the Congressional Subcommittee on National Security, Emerging Threats, and International Relations, “Progress Since 9/11: Protecting Public Health and Safety of the Responders and Residents,” September 8, 2006.

Philip J. Landrigan, MD

Presented testimony before the US House of Representatives Homeland Security Committee, “Protecting the Protectors: First Responder Health Issues in the Wake of Catastrophic Events,” September 20, 2007.

Presented testimony before the US House of Representatives Energy and Commerce Committee Health Subcommittee, “Answering the Call, Medical Monitoring and Treatment of 9/11 Health Effects,” September 18, 2007.

Presented testimony before the US House of Representatives Labor and Education Committee, “Why Weren’t 9/11 Recovery Workers Protected at the World Trade Center?” September 12, 2007.

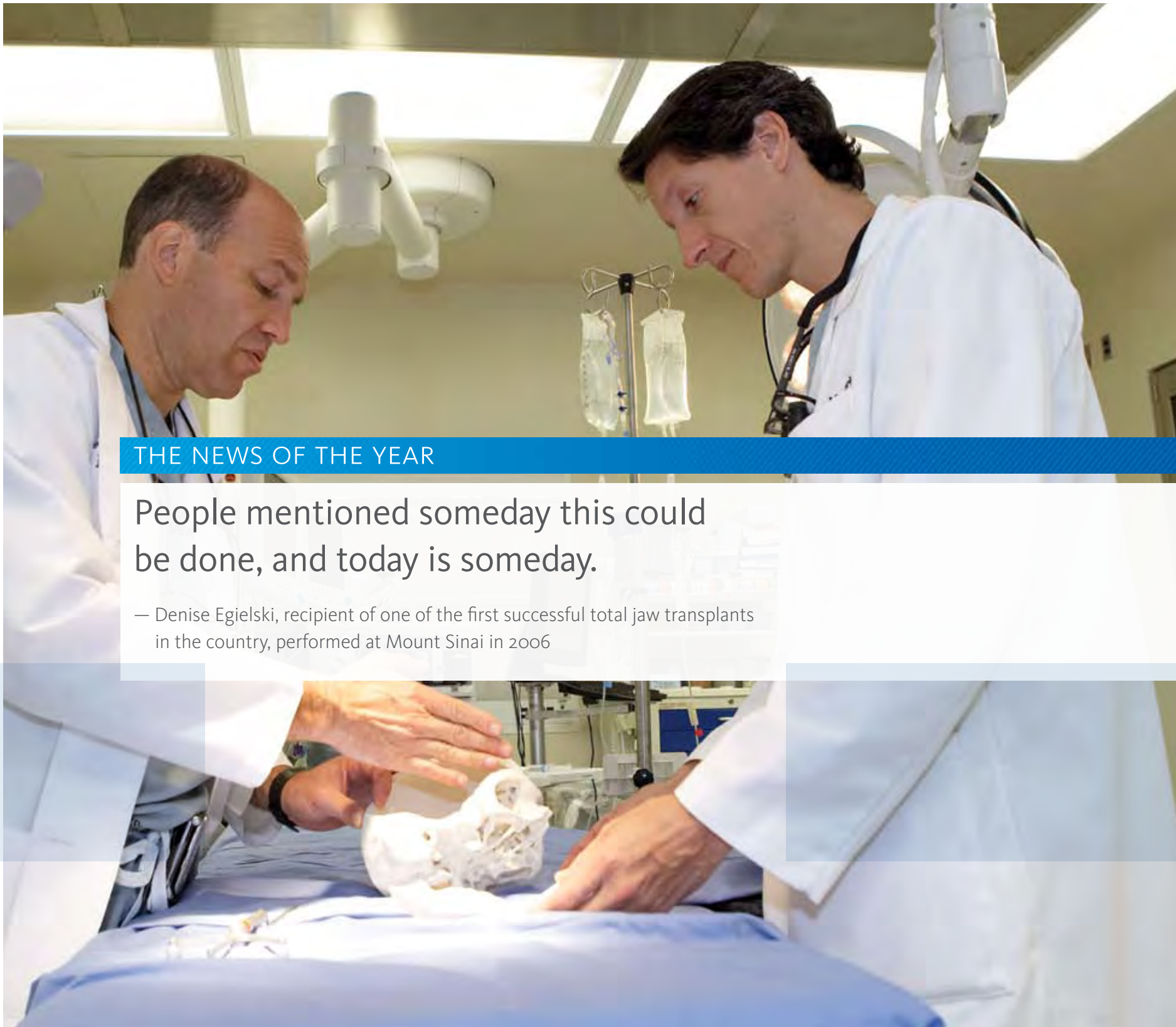
Presented testimony before the New York State Legislature 2007–08 Joint Budget Hearing on Environmental Conservation, “The Need for Children’s Environmental Health Centers of Excellence in New York State,” March 5, 2007.

Stephen Levin, MD

Presented testimony before the Congressional Subcommittee on National Security, Emerging Threats, and International Relations, “Assessing September 11th Health Effects: What Should Be Done?” February 28, 2006.

Leo Trasande, MD, MPP

Presented testimony before the US Senate Committee on Environment and Public Works, “The Superfund Program and the Health of Our Nation’s Children,” June 15, 2006.



THE NEWS OF THE YEAR

People mentioned someday this could be done, and today is someday.

— Denise Egielski, recipient of one of the first successful total jaw transplants in the country, performed at Mount Sinai in 2006

THE WORK OF DECADES

For Dr. Eric Genden and his colleagues, the words “nothing more can be done” represent the ultimate challenge.

JOSHUA BEDERSON, MD, DIRECTOR OF THE DEPARTMENT OF OTOLARYNGOLOGY'S SKULL-BASE AND CEREBROVASCULAR SURGERY PROGRAM, AND PROFESSOR OF NEUROSURGERY (LEFT), AND ERIC GENDEN, MD, CHAIR AND PROFESSOR OF THE DEPARTMENT OF OTOLARYNGOLOGY AND CHIEF OF THE DIVISION OF HEAD AND NECK ONCOLOGY (RIGHT), WITH A MODEL OF A SKULL.

A THREE-DIMENSIONAL CAT SCAN SHOWS WHAT THE TRANSPLANTED MANDIBLE WOULD LOOK LIKE.



The creative approaches to treatment have been the result of collaboration. I'm most proud of that.

— DR. ERIC GENDEN

Tackling the Impossible Cases

Patients come to Dr. Eric Genden when they are told that nothing more can be done. Denise Egielski's case was daunting and complex; it was seen as beyond the capabilities of modern medicine. When she was two years old, the growth of an aggressive tumor led to the surgical removal of Denise Egielski's entire jaw.

For more than fifty years, Mrs. Egielski ate with difficulty. When lying down, the soft tissue around her lower face and neck, as well as her tongue, would collapse onto itself, causing her to choke. She developed sleep apnea and was at risk for a heart attack or stroke. Because of a blood vessel abnormality, Mrs. Egielski was not a candidate for conventional reconstructive techniques.

Dr. Genden, Chair and Professor of the Department of Otolaryngology, and Chief of the Division of Head and Neck Oncology, and Alex Greenberg, DDS, Clinical Instructor in Dentistry and a maxillofacial surgeon, solved the problem by creating an implant from the jaw bone of a deceased 15-year-old boy. Bone marrow from Mrs. Egielski's hip was injected into the donor bone and then the jaw was grafted into a muscle in her back, where it remained for eight months.

Dr. Greenberg explained, "This allowed the donor jaw bone to grow its own blood vessels, and by adding the patient's own bone marrow we were able to prevent the need for immunosuppressive drugs." During the final procedure, the jaw was removed from Mrs. Egielski's shoulder and attached to her lower skull. Within weeks she was leading a normal life.

"Managing Denise's clinical dilemma with a new and innovative approach exemplifies potential benefits of translational research. We've spent fifteen years

studying transplantation immunology, working on techniques to obviate the need for long-term immunosuppression. The concepts were conceived on paper, tested in the laboratory, and finally brought to the bedside. The results are that we are able to deceive the body into believing that the transplanted tissue is the patient's own tissue. At Mount Sinai, we have taken the lead in this area of head and neck transplantation and our orthopedic surgeons are already looking at bone transplants for the management of bony disorders of the spine," said Dr. Genden.

DEVELOPING NEW TECHNIQUES BASED ON COLLABORATION

Since the Head and Neck Cancer Center team was formed in 2005, Dr. Genden and his colleagues not only completed the first total jaw transplant, they performed the first composite tracheal transplants and established an endoscopic and minimally invasive surgical team.

"The Head and Neck Cancer Center has brought together nineteen different specialists from eleven different departments. The creative approaches to treatment have been the result of collaboration. I'm most proud of that," said Dr. Genden. Working with the department of neurosurgery, the team now is able to remove skull-base tumors and brain tumors through the nose with no external incisions, brain retraction, or craniotomy. This less-invasive approach means that patients recover more quickly, with fewer complications.

"We use a four-handed technique, with both surgeons operating at the same time through both nostrils," said Joshua Bederson, MD, Director of the Department's Skull Base and Cerebrovascular Surgery Program and Professor of Neurosurgery. This is due, in part, to new surgical implementation, optics, video display, and an evolving knowledge of endoscopic skull-based anatomy. "In addition," continued

DR. JOSHUA BEDERSON (LEFT) AND DR. ERIC GENDEN (RIGHT) DISCUSS ROBOTIC SURGERY.

Dr. Bederson, “we have learned how to work in the same operative field at the same time. It’s rare to find to surgeons from different specialties who are able to work simultaneously like we do.”

The four-handed technique means that Dr. Bederson works through one side of the nose while Dr. Genden works through the other side. Working in tandem with four hands, the surgeons are able to carefully remove tumors of the skull base without ever creating an external incision.

“In ENT, we have been operating through the nose for years. Neurosurgeons have been removing tumors at the base of the skull for years. This is a combined approach in its richest form—and is emblematic of the multidisciplinary Head and Neck Cancer Center. We are taking disciplines that have worked in parallel and bringing them together for the benefit of our patients,” said Dr. Genden.

USING ROBOTICS IN CANCER SURGERY

Dr. Genden points to the increased use of robotics as key to the future of cancer surgery. For the first time, minimally invasive procedures are now not only meeting but surpassing the effectiveness of former and current “gold standard” treatments. Just one year ago, removing tumors from the voice box would have meant using morbid and risky surgical approaches. Now this surgery is accomplished through the mouth with the aid of a robot. The patient requires no external incisions and commonly returns home—unscarred—in two days instead of two weeks.

“I think this is just the beginning—as the multidisciplinary Cancer Center grows, the applications for robotics, stem cells and tissue engineering, and transplantation will undoubtedly grow. It’s no longer enough to just to cure the illness; patients want

quality of life. They want to function, they want to speak, they want to eat, and they want to be cosmetically unscarred. All these techniques have tremendous potential to help erase the impact of cancer on patients’ lives,” added Dr. Genden.





THE NEWS OF THE YEAR

Mount Sinai Heart launches a comprehensive global battle against heart disease.

In May 2006, Mount Sinai announced the creation of Mount Sinai Heart, a new approach to cardiac care that combines all of the Medical Center's world-class resources—including internationally renowned physicians, scientists, and educators; clinical services; leading-edge research; and an outstanding cardiology training program—in one integrated entity.

VALENTIN FUSTER, MD, PHD, DIRECTOR OF MOUNT SINAI HEART

THE WORK OF DECADES

The group we have assembled will dramatically change the way medical science diagnoses, treats, and even thinks about heart disease.

— VALENTIN FUSTER, MD, PHD
Director of Mount Sinai Heart, Director of the Zena and Michael A. Wiener Cardiovascular Institute and the Marie-Josée and Henry R. Kravis Center for Cardiovascular Health, and the Richard Gorlin, MD/Heart Research Foundation Professor

ROGER HAJJAR, MD,
TRACKS THE BEHAVIOR
OF STEM CELLS
INJECTED INTO HEART
MUSCLE CELLS.



From tissue repair to the eradication of heart disease throughout the world, Mount Sinai Heart is the future.

— KENNETH L. DAVIS, MD
President and Chief Executive Officer, The Mount Sinai Medical Center

Fighting heart disease on all fronts

Valentin Fuster has spent his career shaping Mount Sinai's world-class reputation in both research and clinical care, and he has recruited an unparalleled group of experts to work alongside him. "In the fight against the world's leading cause of death, the free exchange of ideas and information fosters great science. And I believe our team of researchers and clinicians is now the best in the world," said Dr. Fuster.

In addition to his Mount Sinai responsibilities—Director of the Zena and Michael A. Wiener Cardiovascular Institute and the Marie-Josée and Henry R. Kravis Center for Cardiovascular Health—Dr. Fuster is also the Richard Gorlin, MD/Heart Research Foundation Professor, Past President of the World Heart Federation, Past President of the American Heart Association, and the President for Science of the National Centre for Cardiovascular Research (CNIC), the equivalent of the National Heart, Lung, and Blood Institute (NHLBI), in Madrid, Spain.

A WORLD-CLASS TEAM

Samin K. Sharma, MD, is the Director of the Cardiac Catheterization Laboratory, Director of Interventional Cardiology, Co-Director of the Zena and Michael A. Wiener Cardiovascular Institute, and the Zena and Michael A. Wiener Professor of Medicine. Under Dr. Sharma's leadership, the Cardiac Catheterization Laboratory has achieved the lowest mortality rate in New York State for angioplasty procedures, according to a report from the state's Department of Health. In 2006 Dr. Sharma received the Governor's Award for his outstanding achievement in the area of interventional cardiology, and later that year, he celebrated his 5,000th catheterization procedure.

With the advent of Mount Sinai Heart, the pace of recruitment has increased dramatically. Recent arrivals include **Mario Garcia, MD**, Director of Non-Invasive Cardiology and Professor of Radiology and Medicine (Cardiology), a former director of the Cleveland Clinic Foundation. Before leading Mount Sinai's cardiac imaging center, Dr. Garcia worked with NASA and the National Space Biomedical Research Institute on the use of echocardiography in manned space flight. Dr. Garcia also worked with the US Department of Defense on the development of an ultrasound probe needle that reduces fluid in battle-related wounds. He is currently creating a new fellowship program in cardiovascular imaging. The development of a multidisciplinary effort with two nationally prominent colleagues, **Martin E. Goldman, MD**, Director of Echocardiography and Professor of Medicine (Cardiology), and **Milena Henzlova, MD**, Director of Nuclear Cardiology and Associate Professor of Medicine (Cardiology), makes this center one of the most prominent worldwide.

Roger Hajjar, MD, came to Mount Sinai from Harvard, where he pioneered in the study of gene therapy for congestive heart failure. He is currently tracking the behavior of stem cells injected into heart muscle cells. Dr. Hajjar, the Arthur and Janet C. Ross Professor of Medicine (Cardiology), is also the Director of the new Cardiovascular Research Center. The Center's mission is to focus on the molecular mechanisms of human cardiovascular disease and to translate basic findings to novel therapies and diagnostics, as well as to mentor MD and PhD trainees committed to a career in academic cardiovascular research. At the Center, he currently oversees the work of six principal investigators and fifty trainees, including graduate students, postdoctoral fellows, and technicians.

Bruce Gelb, MD, is the Director of the new Center for Molecular Cardiology, the Arthur J. and Nellie Z. Cohen Professor of Pediatrics, and Professor of Genetics and Genomic Sciences. His work has been nationally and internationally recognized with

A Destination for Interventional Cardiology

Mount Sinai's Catheterization Laboratory is one of about a handful around the country that performs more than 5,000 interventional cardiology procedures each year. The Catheterization Lab is led by Samin K. Sharma, MD, who performs over 1,500 complex coronary interventions annually, one of the highest rates in the country, while achieving an extremely low complication rate. According to New York State Department of Health reports, he has the highest angioplasty success rate (lowest mortality, less than 0.1 percent) for any interventional cardiologist in the state since 1994.

Under Dr. Sharma's leadership, Mount Sinai Heart has become one of the best and busiest centers in New York, providing excellent care for all types of simple and complex high-risk heart patients. In addition to coronary interventions, Dr. Sharma specializes in the non-surgical treatment of mitral and aortic stenosis (balloon valvuloplasty).

"Patients are referred to us after they have tried all medications and failed," explained Dr. Sharma. "We usually treat patients who have significant blockage, 90 percent or more. We have also educated our affiliate and referring physicians that patients who have symptoms that continue after medication has been tried should be referred for catheterization."

Intentionally, the Catheterization Laboratory has a small number of full-time physicians who perform a high volume of procedures. "Each faculty member does about five hundred interventions a year," Dr. Sharma explained. "Studies have shown that the volume drives quality. It makes us better and reduces complications."



SAMIN SHARMA, MD, THE ZENA AND MICHAEL A. WIENER PROFESSOR OF MEDICINE, IN THE CARDIAC CATHETERIZATION LABORATORY.

distinguished research awards. Dr. Gelb focuses on the development of the heart and the genes that lead to congenital heart defects. Dr. Gelb and his colleagues have already achieved several scientific accomplishments in this area, including the discovery of two genes for Noonan syndrome (a condition in which the heart and other major organs do not function properly), and the discovery of a gene that causes patent ductus arteriosus (a common heart defect in which a blood vessel that allows blood to bypass the lungs in the womb fails to close after birth).

David Adams, MD, the Marie-Josée and Henry R. Kravis Professor and Chair of the Department of Cardiothoracic Surgery, is internationally regarded for his expertise in mitral valve surgery. Dr. Adams has devoted his career to the study of ischemic mitral regurgitation, outcomes related to mitral valve repair, and novel mitral valve repair strategies.

Michael L. Marin, MD, the Dr. Julius H. Jacobson II Chair in Vascular Surgery and Chair of the Department of Surgery, is a world leader in the minimally invasive treatment of aortic aneurysm disease. He was the first surgeon in the United States to perform minimally invasive aortic aneurysm surgery. Dr. Marin has written extensively on surgical techniques, endovascular surgery, and intimal hyperplasia, the thickening of the inner layer of an artery.

Ira Parness, MD, trained at Children's Hospital Boston and Harvard Medical School, is the Director of the Division of Pediatric Cardiology and Professor of Pediatrics. Dr. Parness works closely with the Cardiothoracic Surgery team in diagnosing and treating the most difficult and complex cardiac conditions in infants and children. His areas of expertise include echocardiography, fetal cardiology, complex congenital heart disease, and cardiomyopathy. Dr. Parness's work in pediatric echocardiography has been highly recognized by the American Society of Echocardiography.

Going Straight to Root Causes and New Treatments

HEART AND ELECTRICAL FAILURE

This is one of the first three centers in the country where cardiac failure treatment and cardiac arrhythmia treatment are integrated on both the research and clinical levels. The cardiac failure section, led by **Sean P. Pinney, MD**, Director of the Advanced Heart Failure and Cardiac Transplant Program and the Pulmonary Hypertension Program, and Assistant Professor of Medicine (Cardiology), and **Jill Kalman, MD**, Director of the Cardiomyopathy Program and Associate Professor of Medicine (Cardiology), both work closely with **Davendra Mehta, MD, PhD**, Associate Professor of Medicine (Cardiology), and his group in electrophysiology, and with the cardiac transplantation program.

VASCULAR BIOLOGY

The leading killer in the developed world is atherosclerosis, and vascular biology research is the key that will unlock the cure. Mount Sinai is home to three of the most prominent researchers in this field: **Zahi A. Fayad, PhD**, Director of the Translational and Molecular Imaging Institute, of the Eva and Morris Feld Imaging Science Laboratories, and of Cardiovascular Imaging Research, and Professor of Radiology and Medicine (Cardiology), is the leading researcher in molecular magnetic resonance imaging. In early 2007, Dr. Fayad and colleagues discovered the enormous potential to predict and prevent adverse cardiac events by using contrast-enhanced CT imaging, a non-invasive technique that effectively pinpoints dangerous arterial plaque.



At every point, from basic research through clinical care and surgical intervention, Mount Sinai Heart has assembled unprecedented expertise under one roof. Our patients reap the benefits from the moment they walk through the door.

— VALENTIN FUSTER, MD, PHD

Juan J. Badimon, PhD, Professor of Medicine (Cardiology), is internationally recognized for his work on the role of lipids and thrombosis in cardiovascular disease. Specifically, he was the first to demonstrate in experimental models the effect of HDL cholesterol in the removal of LDL cholesterol from the vessel wall, a discovery that has led to a better understanding of lipid metabolism and of such pharmacological potential for atherosclerotic plaque regression in humans. Furthermore, his animal models of experimental atherothrombotic disease have led to new discoveries regarding its nature.

Jeffrey W. Olin, DO, Professor of Medicine (Cardiology), a world-renowned clinical investigator in the field of vascular medicine, has been the lead investigator in many clinical trials, including trials of therapeutic angiogenesis. He currently serves as President of the Society for Vascular Medicine and Biology. He edited and wrote one of the most respected books on vascular disease, *Peripheral Vascular Diseases*.

CLINICAL TRIALS AND IMAGING RESEARCH

This research section is the first of its kind in the world. Clinical trials are led by **Michael Farkouh, MD**, Associate Professor of Medicine, who trained at both the Mayo Clinic and McMaster University. The imaging aspect of this research is under the auspices of Drs. Fayad, Fuster, and Garcia. “We are using the latest imaging technology to follow the progression or regression of atherosclerosis. Using these multimodal imaging strategies, we are able to evaluate the effect of various drug therapies and identify those that hold the most promise for preventing clinical events,” said Dr. Farkouh.

Within the context of clinical trials, **Jonathan L. Halperin, MD**, the Robert and Harriet Heilbrunn Professor of Medicine (Cardiology), is an internationally

respected trialist. He was the principal cardiologist responsible for the design and execution of the Stroke Prevention in Atrial Fibrillation clinical trials, which received over \$25 million in grant support from the National Institutes of Health. These multicenter studies, which involved 3,600 patients and over 100 investigators, helped develop antithrombotic strategies to prevent stroke among the estimated 2.5 million Americans with atrial fibrillation. Subsequently, he directed the SPORTIF (Stroke Prevention using an Oral Thrombin Inhibitor in Atrial Fibrillation) clinical trials, which evaluated the first oral direct thrombin inhibitor for prevention of stroke in patients with atrial fibrillation. These international trials, involving over 7,000 patients randomized at over 700 clinical centers, in 25 nations, represented the most aggressive effort ever mounted against embolic stroke and tested the first new oral anticoagulant in over half a century. He is currently engaged in a number of clinical trials aimed at developing improved therapeutic agents for prevention of ischemic events in an array of cardiovascular disease states.

“At every point, from basic research through clinical care and surgical intervention, Mount Sinai Heart has assembled unprecedented expertise under one roof. Our patients reap the benefits from the moment they walk through the door,” said Dr. Fuster.

Pioneering Global Projects

Today, Mount Sinai is also involved in a variety of clinical programs and trials throughout the country and the world. Here are just some of the efforts that are emblematic of Dr. Fuster’s vision and the expertise of his team.

ZAHY FAYAD, PHD, WANTS TO USE CT IMAGING TO PREDICT CARDIAC EVENTS.



The Program for Diagnostic and Preventive Medicine

Mount Sinai's Program for Diagnostic and Preventive Medicine provides the most complete and accurate general health assessment available in the New York metropolitan area. Patients who participate in this full-day, non-invasive diagnostic screening undergo a comprehensive medical examination by one of Mount Sinai's best-qualified senior physicians. This examination is complemented by specialized consultations, examinations, and state-of-the-art

imaging technology to provide detailed assessments of cardiovascular, pulmonary, gastrointestinal, endocrinological, gynecological, ophthalmic, audiological, neuromuscular, and dermatological status. The program can be customized for each individual to meet specific needs, both medical and personal. At the end of the day, patients meet with the physician to review the results of all tests and consultations and discuss medical issues that have been identified. Afterward, patients receive a dossier containing all the test results, images, reports, and recommendations from

their comprehensive evaluation to review with their personal physician.

"This program represents a channel of access to some of the best services at Mount Sinai," said program director Dr. Jonathan L. Halperin. "Not only is it the most comprehensive, single-day health assessment available anywhere, it's right here in New York City."

The FREEDOM Trial

In 2004, Dr. Fuster was awarded a \$25 million grant from the National Heart, Lung, and Blood Institute of the National Institutes of Health to study patients with diabetes and multi-vessel coronary disease at Mount Sinai School of Medicine. The global multicenter study is called the Future Revascularization Evaluation in Patients with Diabetes Mellitus: Optimal Management of Multivessel Disease (FREEDOM) Trial and is expected to be the definitive study to determine the best clinical practice for this patient population: balloon angioplasty with drug-eluting stenting or coronary artery bypass graft surgery. The FREEDOM Trial will encourage and educate cardiologists to become more aware of diabetes so that they can take a more comprehensive approach to the diagnosis and treatment of their patients, explained Dr. Fuster. "Too often we think of patients with regard to the organs in which we have expertise. These diseases are systemic and this study reinforces that fact in a very fundamental and influential way."

An ancillary NIH FREEDOM Trial, an imaging pilot, led by Dr. Fayad, PhD, Professor of Medicine (Cardiology and Radiology), is ongoing at Mount Sinai using multimodality magnetic resonance imaging, PET, and CT scanning technologies, for the non-invasive assessment of atherosclerosis plaque composition and molecular activity.

The High Risk Plaque Initiative

Can non-invasive bioimaging with blood markers predict a heart attack or stroke before it occurs? Under Dr. Fuster's leadership, for the first time ever, mobile imaging units will be used to screen 7,300 patients in three US cities—Chicago, Louisville, and Miami. All patients must have at least one risk factor for heart disease: high blood pressure, obesity, diabetes, a family history of heart disease, or smoking. Six thousand of these patients will be screened with only ultrasound and standard CT

scans. Two thousand patients will undergo MRI and 200 patients will receive FDG-PET/CT scans. The remaining 1,300 patients will serve as the control group and not undergo imaging.

"Over the next three to four years, we will be looking to see if we can predict cardiovascular events in patients. Mount Sinai is leveraging its vast imaging and diagnostic expertise across a very large at-risk population. Until now, the data on prevention and screening have been lacking, but we're going out into the field to change that," said Dr. Fayad.

The Grenada Heart Project

The island of Grenada is at a pivotal point in the fight against heart disease. Is it possible to stem a developing epidemic of cardiovascular disease and make Grenada a model for other countries to follow as they develop education and treatment programs? Because Grenada is rapidly becoming more industrialized, behaviors are changing. Fewer people get exercise from walking and more people are eating foods that contribute to the development of atherosclerosis. Dr. Fuster at Mount Sinai, working in partnership with the World Heart Federation, is surveying 10,000 people in Grenada to profile their risk factors and thus set the stage for a population-based intervention. "We believe we have the potential to influence an entire nation at risk and create a model that can be adopted throughout the developing world," said Dr. Farkouh, who directs the clinical coordination for the project.

Sesame Street Education Project

Because no one is too young to develop healthy eating and exercise habits, Dr. Fuster is working with the producers of *Sesame Street* to influence young viewers and develop model education programs. "Big Bird and his colleagues are among our strongest allies in creating a new generation of healthier Americans. And we cannot discount the influence that children have over the behavior of their parents," said Dr. Fuster.

Surgical Innovation and Advocacy

Drs. Adams and Marin have each pioneered new surgeries for life-threatening cardiovascular conditions. Dr. Adams is an internationally recognized expert in mitral valve repair and reconstruction, and Dr. Marin is a world leader in the minimally invasive treatment of aortic aneurysm disease. Both are also vocal advocates for better screening, diagnosis, and treatment of patients not just at Mount Sinai, but throughout the world.

MITRAL VALVE DISEASE — RECONSTRUCTION NOT REPLACEMENT

“Today almost all patients with mitral valve prolapse are candidates for valve reconstruction. Unfortunately and despite a clear consensus in current guidelines, valve replacement remains surprisingly common in the United States,” said Dr. Adams.

Mount Sinai is nationally recognized for its expertise in mitral valve reconstruction. Dr. Adams, commenting on a recent publication from his group, noted, “At Mount Sinai we had a 100 percent repair rate, and that was made possible not only because of our surgical expertise, but because of our entire team of anesthesiologists and cardiologists who provide expert help with valve imaging and clinical care.” In addition to managing a clinical program of over two hundred mitral valve reconstructions a year, Dr. Adams and his colleagues speak and write extensively about their approach to valve reconstruction.

The Mount Sinai team works closely with Dr. Alain Carpentier, MD, PhD, Professor of Cardiovascular Surgery at Hôpital Europeen Georges Pompidou in Paris and the father of mitral valve reconstruction. Dr. Adams and his partner Farzan Filsoufi, MD, Associate Professor of Cardiothoracic Surgery, are co-authoring a textbook with Dr. Carpentier entitled *Carpentier’s Valve Reconstruction*, due out in 2008.

Dr. Adams is also the co-inventor of the Carpentier-McCarthy-Adams IMR Etlogix Annuloplasty Ring, the first asymmetric ring designed to treat asymmetric dilation. He and Dr. Carpentier are again collaborating on a future generation of annuloplasty rings that will facilitate mitral valve repair. “Without question our unique collaboration with Professor Carpentier is one of the key elements that have catapulted Mount Sinai into the upper echelon of mitral valve reconstructive centers in the world,” said Dr. Adams.



DAVID ADAMS, MD, THE MARIE-JOSÉE AND HENRY R. KRAVIS PROFESSOR AND CHAIR OF CARDIOTHORACIC SURGERY. AN IMAGE OF A REPAIRED TRICUSPID VALVE IS DISPLAYED ONSCREEN.

Teaching Surgical Volunteerism and Independence

A pilot program in the Dominican Republic gives third-year residents the opportunity to perform surgical procedures in a resource-limited setting. The elective rotation, one of only a handful of clinical rotations that take place outside the United States, is the subject of a paper written by Mount Sinai faculty and residents in a recent issue of the *Journal of Surgical Education*.

Silverberg D, Wellner R, Arora S, Newell P, Ozao J, Sarpel U, Torrino P, Wolfeld M, Divino C, Schwartz M, Silver L, Marin M., *Journal of Surgical Education*, 2007 May-Jun; 64(3): 143-49.

“The program helps young surgeons develop independent skills and enhances their

understanding of just how much volunteerism can mean to people throughout the world. It’s also turned out to be a tremendous recruiting tool for Mount Sinai. The very best medical school graduates want to be part of a program that gives them such an extraordinary opportunity,” said Dr. Marin, one of the founders of the program.

The Mount Sinai team investigated several locations for the clinical rotation and ultimately decided on the Hospital of Juan Pablo Pina, a 250-bed public facility in San Cristobal, which was receptive to hosting residents and learning from them. One resident at a time travels to San Cristobal and spends one month at the hospital. About seven residents rotate through the program every year. The paper notes that on average, each resident performs about fifty to

ninety procedures during his or her stay, almost 40 percent of which are general surgical procedures. The residents also perform surgeries in a variety of specialty areas, including general vascular surgery, urology, neurosurgery, orthopedics, and pediatrics.

Rachel Wellner, now a fourth-year surgery resident, spent January 2006 in San Cristobal. “You learn to think on your feet and how to best use the tools at hand,” she said. “I used dish soap to scrub before operating. The running water would go off several times a day. Sometimes the power went out. Even when the power was on, the anesthesiologist provided ventilation by hand using a bag. The operating rooms consisted of bare-bones technology. I realized that if I could handle this, I could handle anything.”



MICHAEL MARIN, MD, THE DR. JULIUS H. JACOBSON II CHAIR IN VASCULAR SURGERY, REVIEWS X-RAYS OF AORTIC ANEURYSMS.

AORTIC DISEASE — SAVING MORE LIVES

“Patients don’t know they have aortic aneurysm disease until a catastrophic event occurs. That’s why screening programs are so critical. Once aortic disease is diagnosed, we can successfully repair the artery with minimally invasive surgery,” said Dr. Marin.

After many years of worldwide leadership as a surgical center for repairs of aneurysms of the aorta under Randall B. Griepp, MD, today Mount Sinai performs more aortic minimally invasive repairs than any other surgical center in the country. In 1992, Dr. Marin was, in fact, the first surgeon in the United States to perform the procedure when he was at Montefiore Medical Center. “Mount Sinai recruited me in 1996 to create a program in minimally invasive endovascular surgery. When I started here, there weren’t even any devices available to help repair arteries from the inside with minimally invasive techniques, so my team hand built them,” explained Dr. Marin.

“Early on, Mount Sinai recognized the importance of this aortic aneurysm program and supported us as we got it off the ground. Today, we are not only leaders in minimally invasive surgical procedures; we have spearheaded efforts to make diagnosis a priority. To that end, we led successful lobbying efforts to have Medicare and other programs cover screening costs for aortic disease,” continued Dr. Marin.

Mount Sinai is further expanding the reach of its expertise and services by creating medical practices throughout the New York area that will screen patients for aortic disease. Doctors from these practices will then transfer patients to Mount Sinai if complex tertiary care is required. “This will certainly help us save lives by discovering the disease in more patients before fatal ruptures occur,” said Dr. Marin.

Another key aspect of Mount Sinai’s comprehensive approach is research into the genetic component of aortic disease. “We have a steady flow of research from our large registry of patients. Today we are beginning to do the micro-array genetic analysis to isolate the specific gene or genes that may be associated with aortic disease. If we could identify patients who are at greatest risk, we could encourage them to get periodic screenings and thus prevent millions of totally unnecessary catastrophic events,” said Dr. Marin.



THE NEWS OF THE YEAR

The Atlantic Philanthropies recognizes Mount Sinai as a leader in Adolescent Medicine.

The Mount Sinai Adolescent Health Center received a \$12 million, five-year grant from The Atlantic Philanthropies. This support will fund new programs and further establish the Center as a national model.

ANGELA DIAZ, MD, DIRECTOR OF THE MOUNT SINAI ADOLESCENT HEALTH CENTER, STANDS BEFORE THE EAST HARLEM COMMUNITY.

THE WORK OF DECADES

At Mount Sinai we are addressing the real risks that adolescents face and the dreadful lack of access to services, which is a crisis for kids today. There is a desperate, unmet need in New York and across the country.

— ANGELA DIAZ, MD
Director of The Mount Sinai Adolescent Health Center and the Jean C. and James W. Crystal Professor of Pediatrics



AN INVITATION TO THE MOUNT SINAI ADOLESCENT HEALTH CENTER'S ANNUAL FUNDRAISER (IMAGE DESIGNED AND DONATED BY MTV).

We start where each adolescent is. We encourage kids to come and share their lives with us even if those lives include abuse or other issues that are extremely hard to talk about.

— DR. ANGELA DIAZ

An Advocate for the Forgotten Adolescent

Dr. Angela Diaz grew up in the Bronx and, as a teenager, found her way to The Mount Sinai Adolescent Health Center, where a social worker changed her life. Her experience reaffirmed her dream to pursue a career in medicine. Today she is an advocate for the forgotten adolescent, and under her leadership, The Mount Sinai Adolescent Health Center has become the largest center of its kind in the country.

Among her many accomplishments, Dr. Diaz has served as a White House Fellow, a member of the Food and Drug Administration Pediatric Advisory Committee, and a member of the National Institutes of Health State of the Science Conference on Preventing Violence and Related Health Risk Social Behaviors in Adolescents. She has also chaired the National Advisory Committee on Children and Terrorism. She is currently a member of the Board of Directors of the New York City Department of Health and Mental Hygiene and the NIH National Institute of Child Health and Human Development, Biobehavioral and Behavioral Sciences Committee.

ENCOURAGING KIDS TO SHARE THEIR LIVES

“When we provide adolescents with comprehensive services designed just for them and get them to care more about their own health, we are providing them the ability to meet their tremendous promise,” explained Dr. Diaz.

The Mount Sinai Adolescent Health Center, which has been serving the community for nearly forty years, is one of the very few places in the country that offers free, integrated services to an otherwise underserved population of adolescents and young adults, ages 10–21. The Center provides high-quality services that include

routine care, treatment of acute problems, mental health services, reproductive health care, substance abuse prevention and treatment, HIV prevention and treatment, and medical-legal services. The Center will also be adding dental care and new programs focusing on the prevention of obesity and diabetes.

In a typical year, the Center serves more than 10,000 patients who log more than 45,000 visits. Over the next five years, the program will expand to accommodate 15,000 patients.

But what makes the Center successful is much more than the particular services it offers. “We start where each adolescent is. We encourage kids to come and share their lives with us even if those lives include abuse or other issues that are extremely hard to talk about. Once they are willing to do that, we can address all their health issues and build long-term relationships. These kids also tell their friends about us, which is key. We’ve grown primarily through the power of word-of-mouth recommendations from the adolescents themselves,” explained Dr. Diaz.

EXTENDING THE REACH OF ADOLESCENT HEALTHCARE

The Mount Sinai Adolescent Health Center is already a major training site for adolescent healthcare professionals from around the world, offering one of only twenty-six adolescent medicine fellowships in the country. The Center plans to expand the training and teaching aspects of its work, and eventually create a formalized institute that will allow physicians, nurses, social workers, and teachers from across the United States to build their own effective healthcare and education programs.

“We are also actively engaged in a multi-stage, five-year effort to analyze our own programs to find out where we are most effective,” said Dr. Diaz. “The evaluation

What Makes Some Adolescents Resilient?

“So many of the teenagers who come to The Mount Sinai Adolescent Health Center have been traumatized. These kids experience poverty, racism, physical or sexual abuse—all the wear and tear of very tough lives. Yet so many of them do very well in spite of what they have been through. We are interested in learning more about what makes some adolescents particularly resilient,” explained Dr. Angela Diaz.

Since 2003, when Mount Sinai organized and hosted a conference entitled “Resilience in the

Face of Trauma: Adolescent Mental Health and Youth Development,” Center clinicians have continued to explore the various components of resilience. Is it a physiological measurement linked to something in the brain? To what degree is it an emotional measure influenced by a special relationship with someone who is close and nurturing?

“We are incorporating the study of resilience into the Center’s self-evaluation project,” added Dr. Mary Rojas. “Among the many factors we are looking at is the impact of the Center on adolescent self-confidence. Does participation in our

programs give kids an added sense of empowerment? And if so, how can our model be extended to help adolescents in this country and around the world recover from potentially crushing trauma?”

includes looking at our data systems so that we can better track our patient profiles, and monitor needs and health outcomes. We have an advisory panel that includes experts from Mount Sinai and around the country, and we will be able to formalize our learning. There is a strong national interest in replicating our model of services provision.”

RESEARCH WITH BOTH LONG-TERM AND IMMEDIATE IMPACT

The Center’s research studies and questionnaires are designed so that research is informed by the adolescent patients’ perspectives. “We are involved in many research projects that translate directly to patient care,” said Mary Rojas, PhD, Research Director and Associate Professor of Pediatrics and Health Policy. One project that has recently received significant funding from NIH focuses on the human papillomavirus (HPV) and the effectiveness of the HPV vaccine on high-risk adolescent girls.

Another study currently under way at the Center examines disclosure of abuse in primary care settings to determine the best way to get adolescents to reveal sensitive and critical information to clinicians. Six hundred Center teenagers were randomized to one of four groups to test the most effective methods of eliciting current or past abuse: computerized questionnaire, paper and pencil questionnaire, clinician-administered questionnaire, or an unstructured clinical interview. “We are now analyzing the data to see which of these methodologies results in better disclosure of this very sensitive information. Our learning can be quickly translated into improved treatment,” explained Dr. Diaz.

In the coming years, the Center will be increasing its research activity in a number of areas—reproductive health, obesity, and mental health, which will include the study of resilience. “We are recruiting leading experts in these areas in order to enhance adolescent health programs as quickly as possible,” said Dr. Rojas.



MARY ROJAS, PHD (LEFT), WORKS WITH CASSIMA PRYCE (RIGHT), A PATIENT OF THE ADOLESCENT HEALTH CENTER, AND A PEER EDUCATOR FOR SPEEK, SINAI PEERS ENCOURAGING EMPOWERMENT THROUGH KNOWLEDGE.



THE NEWS OF THE YEAR

Mount Sinai receives the Presidential Community Service Award for its pioneering East Harlem Health Outreach Partnership.

The School of Medicine received a 2006 National Community Service Honor for a free clinic created by students. It is the only medical school in the country to be so honored.

THE WORK OF DECADES

Programs like EHHOP and the Global Health Center not only offer a tremendous service to the community, they help us attract the brightest students to Mount Sinai. And attracting the best and brightest students allows us to recruit top scientists and clinicians to the faculty.

— DAVID MULLER, MD
The Marietta and Charles C. Morchand Chair and
Dean of Medical Education

DAVID MULLER, MD, DEAN OF MEDICAL EDUCATION (CENTER), SPEAKS WITH A STUDENT.

There is an explosion of interest among physicians at all stages, in training or beyond—a heightened awareness that as doctors they live and practice in a larger world community.

— JONATHAN RIPP, MD

Serving the World Community

At Mount Sinai, the desire to serve sends many students and faculty far beyond the New York community. What started out as a grassroots global health effort now has official status, with dedicated faculty and links to a network of international sites that welcome students. The Global Health Center, a new program founded under the leadership of Dr. Muller and Ramon Murphy, MD, Clinical Professor of Pediatrics and of Community and Preventive Medicine, and by faculty from the Departments of Medicine, Pediatrics, Emergency Medicine, and Community Medicine, educates and trains incoming students and residents about the developing field of

international medicine, including trauma, disaster relief, pediatrics, reproductive health, and basic clinical care.

Not only is the study of global health formally integrated into the medical school curriculum, it now includes a Master of Public Health specialty track. “There is an explosion of interest among physicians at all stages, in training or beyond—a heightened awareness that as doctors they live and practice in a larger world community,” said Jonathan Ripp, MD, Assistant Professor of Medicine (General Medicine), who is part of the working group shaping global health efforts.

An Opportunity to Serve and Learn

“I’ve always believed in the pay-it-forward philosophy, the repaying of good deeds by doing good things for others,” said Dr. Charney. From its beginnings, Mount Sinai’s strong tradition of service has helped attract those who are committed to creating effective models for community medicine. Because Mount Sinai sits between the richest and poorest zip codes in New York, students and faculty are particularly sensitized to the challenges of treating those who do not have regular access to health care.

A ROLE MODEL FOR THE NEXT GENERATION

David Muller, MD, Dean for Medical Education, embodies the “pay-it-forward” credo. In 1996, Dr. Muller co-founded the Visiting Doctors Program, now the largest academic home visit program in the country. Visiting Doctors not only helps over 1,000 mostly elderly patients avoid unnecessary and expensive hospital stays, it plays an integral role in medical education. All students and residents are required to complete Visiting Doctor rotations as part of their training. “David Muller has far-reaching ideas about service and education. It says a lot about Mount Sinai, someone with such an incredible commitment to the community is in a position of such influence,” said Yasmin Meah, MD, EHHOP Program Director and Assistant Clinical Professor of Medicine.

Dr. Muller and his colleagues encourage students throughout their Mount Sinai careers to develop their own creative approaches to community service. EHHOP is a prime example of just how much motivated students can accomplish.

EHHOP — A BEACON FOR THE COMMUNITY

EHHOP is a student-run clinic that provides free primary care to uninsured adult patients. It is open every Saturday at Mount Sinai’s Internal Medicine Associates. Dr. Meah is the EHHOP program director and the 2007 recipient of the Humanism in Medicine Award from the Association of American Medical Colleges. David Thomas, MD, Medical Director of the Internal Medicine Associates and Associate Professor of Medicine (General Medicine) and Rehabilitation Medicine, is also the EHHOP medical director. “Dr. Thomas and I are the attendings, but students run the show,” said Dr. Meah. The clinic has an executive committee of three or four students and a steering committee of eleven to fourteen students who are responsible for specific departments such as outreach, research, social work, referrals, and fundraising.

Every Saturday five to ten working teams of two students each operate the clinic. Each team has a junior clinician (a first- or second-year student) and a senior clinician (a third- or fourth-year student). The teams see individual patients and then present cases to the volunteer attending clinician of the day, who is usually a member of Mount Sinai’s Department of Internal Medicine. “The attending physician will review the case, see the patient, and do a lot of bedside teaching,” explained Dr. Meah. Then students follow up with tests, medication, and treatment plans for their patients. “At EHHOP students are learning to follow patients for a full year, which is an incredible opportunity. They become very sophisticated at delivering excellent primary care to an underserved population, even when resources are limited,” continued Dr. Meah.

EHHOP also works with Mount Sinai’s REAP (Resource Entitlement Advocacy Program) project to aggressively seek government benefits for patients. The paperwork can be so overwhelming that even those who qualify for entitlement

Teaching Community Means Teaching Diversity

Mount Sinai places a high priority on increasing diversity in medicine and encouraging youth from the community to enter the healthcare professions. Why? Because studies have shown that physicians who are themselves from diverse and underserved communities are more likely to remain after training in these communities, making a contribution to patient care and closing the gap in healthcare disparities.

While national statistics show that African Americans and Latinos—especially males—are underrepresented in medical schools today,

Mount Sinai School of Medicine has a more diverse student body than most—21.3 percent of its students are either African American or Latino.

“Our Center for Multicultural and Community Affairs (CMCA),” said Gary Butts, MD, Mount Sinai’s Associate Dean for Diversity Programs, Policy, and Community Affairs, “symbolizes Mount Sinai’s commitment to increasing the number of Latinos and African Americans who are medical students, residents, and physicians. Our effort is part of a campaign to close the gap in healthcare disparities and to reduce the prevalence of preventable disease.”

For three decades, CMCA has fostered pipeline programs that encourage and prepare high school and college students for careers in health care. These students also contribute to clinical, basic science, and health services research about health disparities.

In addition, Dr. Butts and CMCA facilitate the recruitment of graduate and medical students, residents, postdoctoral fellows, and faculty from underrepresented groups in medicine; accelerate the expansion of research opportunities and funding related to minority health; and enhance education and training that improve professional competencies and cross-cultural healthcare in the community.

programs don’t know how to apply. Students volunteer their time to navigate the application process and bring patients eligible to receive benefits into the mainstream hospital system.

In another extension of the original program, EHHOP has recently launched the Chronic Care Project, which partners students with social workers to follow patients with such conditions as hypertension and diabetes. “These multidisciplinary teams look at every aspect of a patient’s treatment. Over time, students learn firsthand that controlling these conditions requires not just medication, but the successful management of diet, stress, and many other factors in their patients’ lives,” said Dr. Meah.

“EHHOP continues to be a beacon for the community. That it was established by students and now involves over 60 percent of them in direct care sends a clear message that for the Mount Sinai doctor of tomorrow, the highest priority is access to care today,” said Dr. Muller.

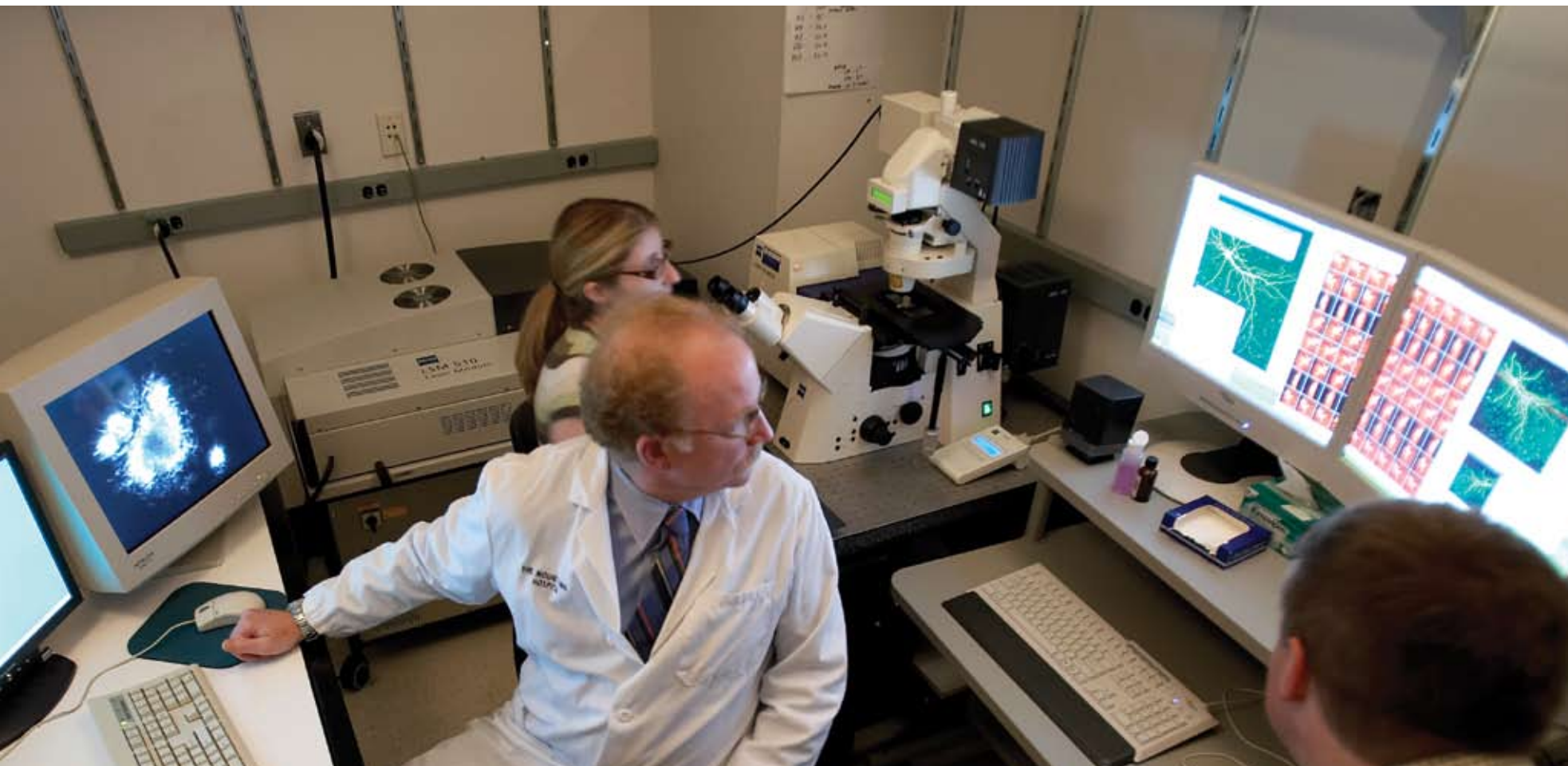
Under Dr. Muller’s leadership, Mount Sinai has also piloted the innovative Seniors as Mentors Program, which partners first- and second-year students with elderly patients from the Coffey Geriatrics Associates practice. This program was created by Rosanne Leipzig, MD, PhD, the Gerald and Mary Ellen Ritter Professor of the Brookdale Department of Geriatrics and Adult Development, Professor of Healthy Policy and Medicine, and the Vice-Chair of Education; Rainier Soriano, MD, Assistant Professor of Medicine and Geriatrics and Adult Development; and Valerie Parkas, MD, Assistant Professor of Medicine (Infectious Diseases). What is unique about the program is that it allows students to follow individual patients on a long-term basis. “Usually medical students see these patients only when they are hospitalized. By getting to know patients in the community who are not necessarily in crisis, they gain a perspective on healthy aging and an understanding of the complicated ethical, cultural, and health-system issues associated with an aging population,” explained Dr. Muller.



STUDENTS COME TO DR. DAVID MULLER WITH THEIR QUESTIONS.

EHHOP continues to be a beacon for the community. That it was established by students and now involves over 60 percent of them in direct care sends a clear message that for the Mount Sinai doctor of tomorrow, the highest priority is access to care today.

— DR. DAVID MULLER



THE NEWS OF THE YEAR

John Morrison, PhD, is named Dean of Basic Sciences and the Graduate School of Biological Sciences.

The Graduate School is launching a number of new, thematically oriented programs affiliated with Mount Sinai's translational research institutes.

JOHN H. MORRISON, PHD, THE W. T. C. JOHNSON PROFESSOR OF GERIATRICS AND ADULT DEVELOPMENT (NEUROBIOLOGY OF AGING), REVIEWS HIGH-MAGNIFICATION IMAGES OF INDIVIDUAL DENDRITIC SPINES, TENTACLE-LIKE STRUCTURES THAT CONNECT NEURONS.

THE WORK OF DECADES

Every student who works with John Morrison is inspired by his approach. He is a creative scientist who never forgets that patients are the ultimate beneficiaries of his work.

— DENNIS CHARNEY, MD
Dean, Mount Sinai School of Medicine



DR. JOHN MORRISON ADVISES
GRADUATE STUDENT ATHENA WANG.

At the Forefront of Science and Medicine

From the beginning of his career, John Morrison's professional interests and philosophy have always put him a bit ahead of his time. "When I decided I wanted to work in neuroscience, it didn't yet exist as a discipline. But I knew I wanted to be a neuroscientist and work with interdisciplinary teams," he explained. Dr. Morrison's own achievements make him a natural choice to help develop and lead new programs at the Graduate School of Biological Sciences emphasizing established and emerging scientific themes.

In April he received a MERIT (Method to Extend Research In Time) Award from the National Institute on Aging, a division of the National Institutes of Health (NIH). A MERIT Award is grant support from the NIH that honors a long-standing and distinguished record in scientific research and achievement. Dr. Morrison, PhD, Dean of the Basic Sciences and the Graduate School of Biological Sciences and the W. T. C. Johnson Professor of Geriatrics and Adult Development (Neurobiology of Aging), is the fifth researcher at Mount Sinai to receive a MERIT Award in the past four years.

The \$5 million MERIT Award will support Dr. Morrison's research over the next ten years. Dr. Morrison received the award for his work examining the effects of aging on the brain, which he has been conducting for the past two decades.

Brain cells typically lose their neuroplasticity during normal aging. Dr. Morrison's goal is to identify when and where changes in brain cell neuroplasticity take place, and how to intervene to promote successful brain cell adaptability. This, in turn, may help reduce the risk of age-related cognitive decline, or possibly even dementia and Alzheimer's disease.

That the MERIT Award comes at a time when funding from the National Institutes of Health is shrinking is especially noteworthy. "This kind of financial support from the NIH during a challenging time for researchers is a testament to the strength of the entire Mount Sinai faculty. To have five MERIT awardees at Mount Sinai at one time is an achievement," said Dr. Morrison.

To put the grant in perspective, only 10 percent of grant requests to the NIH are approved each year; of that 10 percent, less than 2 percent receive MERIT Award support.

"NIH is really interested in translation, and it's not just a buzzword, and it's not just a phase," continued Dr. Morrison. "We are a freestanding academic medical center with great scientific and clinical strength, so we are in an ideal position to be at the forefront of where science and medicine are heading."

INTEGRATING CLINICAL PROBLEMS INTO TRAINING

The Graduate School is launching a number of new, thematically oriented programs affiliated with Mount Sinai's translational research institutes. Each training program will have the autonomy to expand its curriculum to include specialized courses of study that integrate relevant clinical problems into its basic science focus. Three new training programs will be launched in the fall of 2007—Cancer Biology, Immunology, and Pharmacology and Systems Biology.

Mount Sinai is well positioned for a PhD focus in Cancer Biology, given its historic strength in the oncological sciences. The program will emphasize the cell biology and molecular mechanisms of cancer, and it will be closely tied to the new Cancer Institute, providing a rich environment of translational opportunities for the Graduate School students.

Similarly, the Immunology training program will offer a basic science education within the context of such issues as progressive autoimmune disorders and immunological factors that occur after organ transplantation and stem cell therapy. These issues are also central to the work of the Institute for Immune Diseases and the Black Family Stem Cell Institute.

The program in Pharmacology and Systems Biology will provide rigorous training in both pharmacology and the newly emerging discipline of systems biology. It will focus on the complex interactions within the cell and across organ systems that have a role in the high-level integrative functions in the body. Students will have an opportunity to work with the Experimental Therapeutic Institute, where basic science discoveries on viable drug targets will be translated into drugs with greater biochemical and organ specificity than those currently available.

The Graduate School is also in the planning stage for a new PhD program in Developmental and Stem Cell Biology. This program will train young scientists in the experimental techniques of developmental and stem cell biology, in the hope that they will commit to careers focused in these promising avenues of research. This program will be launched in partnership with the Black Family Stem Cell Institute.

In addition to these new programs in basic science, the Graduate School is also developing a PhD program in Clinical Research that will train healthcare professionals — particularly physicians who have recently completed their residencies — in the scientific disciplines required for the design and analysis of research projects that involve people. Graduates of this Mount Sinai program will be ideally suited to lead and implement the final, clinically intensive stage of translational medicine as it moves from bench to bedside.

Overall, this integrative approach will further enhance the translational relevance of the Graduate School's existing training programs. For example, training in neuroscience will benefit from the development of the Brain Institute, which will focus on brain repair. Introductory training in neuroscience may involve lectures about neurodegenerative diseases or traumatic brain injury from doctors, patients, and family members of afflicted individuals. Similarly, the microbiology training area will be linked to the Emerging Pathogens Institute and provide exposure and research opportunities directly linked to pathogenesis and prevention of infectious diseases. This style of training introduces PhD students to medical problems and gives them access to clinical faculty from the outset of their training. Furthermore, Mount Sinai's ten graduate programs will be ideally positioned to receive NIH training grants that emphasize translational research.

"Early in my career, I couldn't apply my research to any kind of clinical work on Alzheimer's disease. People barely knew what Alzheimer's disease was in 1975, and we didn't have mouse models of neurodegenerative disorders. That's all recent. I'm really excited about giving students the opportunity to apply their skills as basic scientists to translational research that can make a tremendous difference to patients," said Dr. Morrison.



DR. JOHN MORRISON IN HIS LABORATORY



STEPHEN HARVEY, CPA, MBA
SENIOR VICE PRESIDENT OF FINANCE,
MOUNT SINAI SCHOOL OF MEDICINE

Message from the Senior Vice President of Finance

I am pleased to report that Mount Sinai School of Medicine continued to enjoy strong financial performance in 2006–07. From revenues of \$1.1 billion, the total surplus for 2006 was \$125.6 million, an increase of \$55.8 million over 2005. For the first six months of 2007, the total surplus was \$74.7 million. Our recent financial success is reflected in Standard & Poor's A- rating and MBIA's commitments to insure bond issues that will support facilities renovations and new building construction in 2007 and 2008. Over the past five years, the School's total equity has grown by \$322 million to \$863.7 million as of June 30, 2007.

We attribute the School's favorable financial results to the outstanding work of our faculty, the generous philanthropic support of our trustees and donors, and the growth in our endowment portfolio from favorable investment returns. Another financial success factor is the mission-based CARTS (Clinical, Administrative, Research, Teaching & Strategic) budget formula that rewards the basic and clinical science departments and faculty based on their performance. Closely tied to the CARTS budget formula are agreed-upon performance indicators and a performance matrix that Dr. Charney reviews with the Chairmen on a quarterly basis. Unfavorable budget/performance variances require corrective action plans that are overseen by a Financial Improvement Committee.

Here are some highlights of the School's financial progress:

Expansion and renovation of educational facilities has allowed the entering medical student class to increase by 20 students to a total of 140 in 2007.

The School is a top 20 recipient of NIH funds awarded to the nation's 125 medical schools.

Over the past five years, NIH awards have increased 46 percent to \$225.4 million in 2006, with 502 awards to 305 research investigators.

2,400 research projects of all types were active during 2006, totaling \$286.5 million, of which 78.7 percent were supported by the federal government.

Despite significant growth in research spending, the backlog of unexpended grants continues to grow, totaling \$172.2 million on June 30, 2007.

Faculty practice receipts of \$273.8 million in 2006 have grown an average of 10.7 percent annually over the past three years.

More than 750 clinical physicians are members of the School's faculty practice.

The faculty practice contributes more than \$30 million annually to School operations to support clinical, research, and capital project initiatives.

To support the rapid growth in School programs, \$179 million of capital projects were approved in 2007 to support education, research, and patient care programs.

Strong financial performance and conservative financial management provide the resources to invest in faculty recruitment, programmatic growth, and facilities improvements according to the School's strategic plan.



LOUIS S. RUSSO, MD
 CHIEF EXECUTIVE OFFICER OF THE FACULTY PRACTICE ASSOCIATES,
 DEAN OF CLINICAL AFFAIRS AT MOUNT SINAI SCHOOL OF MEDICINE,
 AND SENIOR VICE PRESIDENT OF THE MOUNT SINAI MEDICAL CENTER

Message from the Chief Executive Officer of the Faculty Practice Associates

Mount Sinai School of Medicine faculty have three distinct but related missions — education, clinical service, and research. Their clinical mission is largely fulfilled at the Faculty Practice Associates (FPA), which is a multi-specialty group practice with services ranging from primary care to the most sophisticated quaternary disease management.

Mount Sinai's FPA responds to the needs of a broad patient base, with over 400,000 visits during 2007 alone. At the same time, the experience of serving such a diverse group enriches our undergraduate and graduate medical education programs.

Our diverse patient base also allows our clinical investigators to develop new treatments, techniques, and protocols that enhance the well-being of both our own patients and those throughout the world. For example, an FPA member recently developed the first FDA-approved treatment for Fabry's disease, a disorder caused by the lack of or a defective enzyme needed to properly metabolize lipids. And this year, our surgeons in otolaryngology and neurosurgery developed new, minimally invasive techniques that significantly improve the treatment of skull-base tumors.

While the FPA is proud of its high-quality medical care and technological advances, we are also committed to creating a compassionate and patient-centered environment. Our service-related guidelines speak to the importance of patient access, communication, and other issues central to the patient experience. All FPA staff participate in a customer service training program, and we regularly evaluate our overall performance to ensure continuous improvement and patient satisfaction.

As with all faculty practice plans, the clinical revenue generated by the FPA significantly contributes to the financial strength and vitality of the School and The Mount Sinai Hospital. FPA receipts growth has averaged 10 percent annually over the past three years, and exceeded \$273 million in 2006. This growth can be attributed to increased physician productivity, new recruits, and billing and collection improvement initiatives.

Finally, the FPA is committed to maintaining a leadership role in the nation's healthcare system. Strategically, we believe that our greatest growth will come from multidisciplinary programs, such as those focused on women's and men's health or comprehensive cancer care, to name just a few. In addition, we will continue to strengthen our business practices and explore ways to further improve the quality of the patient experience. It is indeed an exciting time to be at Mount Sinai, and I feel privileged to work alongside some of the most visionary and dedicated physicians and staff.

Mount Sinai Affiliates

In addition to its affiliation with the Hospital, the School is affiliated with a number of other healthcare and research institutions. These affiliations enrich the educational, clinical, and research programs of the School. The academic affiliations include:

Baylor Research Institute

A Dallas, Texas–based research and treatment center that is focused on finding prevention therapies and treatments for diseases

Brookhaven National Laboratory

A multi-program national laboratory based on Long Island in Upton, New York, and operated by Brookhaven Science Associates for the US Department of Energy

Cabrini Medical Center

A 493-bed teaching hospital serving patients in Mid-Manhattan and the Lower East Side

Elmhurst Hospital Center in Queens

A 593-bed hospital center that is part of New York City Health and Hospitals Corporation

Englewood Hospital

A 520-bed teaching hospital and the largest voluntary acute care facility in Bergen County, New Jersey

James J. Peters VA Medical Center, Bronx, NY

A tertiary care facility for veterans in metropolitan New York providing a full range of patient care services as well as education and research

Jersey City Medical Center

The only teaching hospital in Hudson County, New Jersey

The Jewish Home and Hospital

A large nursing home facility in Manhattan

Maimonides Medical Center

One of the leading health care providers in Brooklyn

Morristown Memorial Hospital

Part of the Atlantic Health System, home to one of the largest cardiac surgery centers in northern New Jersey

Newark Beth Israel Medical Center

A 596-bed regional care teaching hospital that is part of the Saint Barnabas Health Care System

New York University

(The School is affiliated with NYU for degree-granting purposes)

North General Hospital

Provides primary and secondary care services to residents of Central and East Harlem

Overlook Hospital

Part of the Atlantic Health System and a leader in stroke care and neuroscience

Queens Hospital Center

Part of New York City Health and Hospitals Corporation and a major provider of healthcare services to the southeastern and central Queens community

Saint Barnabas Medical Center

One of New Jersey's largest hospitals and the flagship of the Saint Barnabas Health Care System

St. Joseph's Hospital and Medical Center

A 792-bed medical center located in Paterson, New Jersey, including a Children's Hospital that is one of four state-designated children's hospitals in New Jersey

Select Centers, Programs, and Projects

Mount Sinai is home to many leading research centers and programs that have received major federal and philanthropic support. These centers and programs are dedicated to advancing the prevention, treatment, and management of some of the most challenging mental and physical illnesses. The following centers and programs reflect a sample of those that were newly funded during 2006 and 2007.

Center for Systems Biology in New York

PRINCIPAL INVESTIGATOR

Srinivas (Ravi) Iyengar, PhD

The Dorothy H. and Lewis Rosenstiel Professor and Chair of Pharmacology and Systems Therapeutics

FUNDING SOURCE

National Institute of General Medical Sciences

National Institutes of Health

Center to Advance Palliative Care

PRINCIPAL INVESTIGATOR

Diane E. Meier, MD

Director of the Center to Advance Palliative Care, the Catherine Gaisman Professor of Medical Ethics, and Professor of Geriatrics and Adult Development and Medicine

FUNDING SOURCE

Fan Fox and Leslie R. Samuels Foundation

JEHT Foundation

Mount Sinai Injury Control Research Center

PRINCIPAL INVESTIGATOR

Wayne A. Gordon, PhD

Professor of Rehabilitation Medicine, Associate Professor of Psychiatry

FUNDING SOURCE

Centers for Disease Control

Innate/Adaptive Immune Interactions in Gut Inflammation

PRINCIPAL INVESTIGATOR

Lloyd F. Mayer, MD

Professor of Medicine and Chief of the Divisions of Clinical Immunology and Gastroenterology

FUNDING SOURCE

National Institute of Diabetes and Digestive and Kidney Diseases

Center for Research and Influenza Surveillance

PRINCIPAL INVESTIGATOR

Adolfo García-Sastre, PhD

Professor of Microbiology and Medicine (Infectious Diseases) and the Fischberg Chair in Medicine

FUNDING SOURCE

National Institute of Allergy and Infectious Diseases

Select Faculty Honors and Awards

ADAMS



ALBERINI



ASBELL



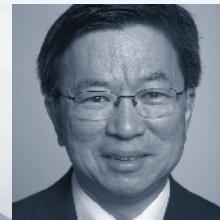
BEDERSON



BOGDANOV



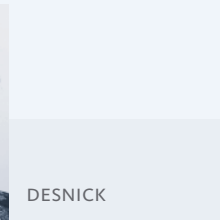
CHOO



CHUANG



DELIGDISCH



DESNICK



DIETERICH

Stuart A. Aaronson, MD

Excellence in Technology Transfer Award
NATIONAL FEDERAL LABORATORY CONSORTIUM

Gift Award for Novel Breast Cancer Markers and Mechanisms
BREAST CANCER RESEARCH FOUNDATION

David H. Adams, MD

Member, Program Committee
AMERICAN ASSOCIATION FOR THORACIC SURGERY

Member, Board of Directors
CARDIOTHORACIC SURGERY NETWORK

Member, Affairs and Government Relations Committee
AMERICAN ASSOCIATION FOR THORACIC SURGERY

Member
SOCIETY OF THORACIC SURGEONS
WORKFORCE ON ADULT CARDIAC SURGERY

Christina Alberini, PhD

Treasurer
MOLECULAR AND CELLULAR COGNITION SOCIETY

George Alonso, MD

Presidential Voluntary Service Award
US AGENCY FOR INTERNATIONAL DEVELOPMENT

Vasanthi Arumugam, MBBS

Presidential Voluntary Service Award
US AGENCY FOR INTERNATIONAL DEVELOPMENT

Penny A. Asbell, MD, MBA

American Academy of Ophthalmology Honor Award
JOINT MEETING OF THE AMERICAN ACADEMY OF OPHTHALMOLOGY
AND THE ASIA PACIFIC ACADEMY OF OPHTHALMOLOGY

Suzanne Veronneau-Troutman Award
WOMEN IN OPHTHALMOLOGY

Amar Ashraf, MD

Presidential Voluntary Service Award
US AGENCY FOR INTERNATIONAL DEVELOPMENT

Manisha Balwani, MD

Fellow, Roscoe Brady Lysosomal Storage Diseases
NATIONAL ORGANIZATION FOR RARE DISORDERS

Natan Bar-Chama, MD

Member, Board of Directors
AMERICAN FERTILITY ASSOCIATION

Member, Board of Directors
SOCIETY OF MALE REPRODUCTIVE UROLOGY

Member, Board of Directors, Membership Committee
AMERICAN SOCIETY OF REPRODUCTIVE MEDICINE

Margaret Baron, MD, PhD

Lead Reviewer Award
STEM CELLS JOURNAL

Joshua Bederson, MD

Chair, Cerebrovascular Section
AMERICAN ASSOCIATION OF NEUROLOGICAL SURGEONS AND CONGRESS
OF NEUROLOGICAL SURGEONS

Nina Bickell, MD, MPH

Member, Health Services Organization and Delivery Study Section,
Center for Scientific Review
NATIONAL INSTITUTES OF HEALTH

Ira J. Bleiweiss, MD

Member, Board of Directors
AMERICAN SOCIETY OF BREAST DISEASE

Vice President
NEW YORK METROPOLITAN BREAST CANCER GROUP

Trustee
NEW YORK PATHOLOGICAL SOCIETY

Vladimir Bogdanov, PhD

Best Article Award
JOURNAL OF THROMBOSIS AND HAEMOSTASIS

Dana Bovbjerg, PhD

Fellowship Award
SOCIETY OF BEHAVIORAL MEDICINE

Andrea Branch, PhD

Member, Study Section, Clinical Research and Field Studies
NATIONAL INSTITUTES OF HEALTH

Gary Brauner, MD

President-elect
INTERNATIONAL SOCIETY OF DERMATOLOGIC SURGERY

David E. Burstein, MD

Member, Peer Review Committee
NATIONAL CANCER INSTITUTE

Martin Camins, MD

Member, Board of Regents
AMERICAN COLLEGE OF SURGEONS

James Capozzi, MD

Chair, Committee on Ethics
AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS

Luis Cardoso-Landa, PhD

New Investigator Research Award
ORTHOPAEDIC RESEARCH SOCIETY

Dennis S. Charney, MD

Member, Subcommittee on Post Traumatic Stress Disorder
INSTITUTE OF MEDICINE

The George N. Thompson Founder's Award for Distinguished Service
SOCIETY OF BIOLOGICAL PSYCHIATRY

Mark R. Chassin, MD, MPP, MPH

Member, Health Advisory Committee
MYERS-JDC-BROOKDALE INSTITUTE, JERUSALEM, ISRAEL

S. Yoon Choo, MD

Chair, National Committee
AMERICAN ASSOCIATION OF BLOOD BANKS

Linus T. Chuang, MD

President
METROPOLITAN GYNECOLOGIC CANCER SOCIETY OF NEW YORK

Bernard Cohen, MD

Treasurer
THE BARANY SOCIETY

Charlotte Cunningham Rundles, MD, PhD

President
US IMMUNODEFICIENCY NETWORK

Rand David, MD

Physician Champion Award
NEW YORK CITY HEALTH AND HOSPITALS CORPORATION

Kenneth L. Davis, MD

National Human Relations Centennial Leadership Award
AMERICAN JEWISH COMMITTEE

Man of the Year Award
GENETIC DISEASE FOUNDATION

Paul-Hoch Distinguished Service Award
AMERICAN COLLEGE OF NEUROPSYCHOPHARMACOLOGY

Chairman, Board of Governors
GREATER NEW YORK HOSPITAL ASSOCIATION

Trustee
THE NEW YORK ACADEMY OF MEDICINE

Liane Deligdisch, MD

Member, Contraceptive and Reproductive Health Branch
NATIONAL INSTITUTES OF HEALTH

Member
FRENCH ACADEMY OF MEDICINE (ACADEMIE NATIONALE DE MEDECINE)

Robert J. Desnick, MD, PhD

Keynote Lecturer
INTERNATIONAL CONGRESS OF INBORN ERRORS OF METABOLISM

Chair-elect
AMERICAN ASSOCIATION OF MEDICAL COLLEGES

Douglas Dieterich, MD

Physician of the Year Award
FLAVORS OF NEW YORK CULINARY GALA AND SPIRIT OF NEW YORK
(AMERICAN LIVER FOUNDATION)

Marcel Dijkers, PhD

President-elect
AMERICAN CONGRESS OF REHABILITATION MEDICINE

DIVINO

FEDERMAN

S. FRIEDMAN

FUSTER

**Celia M. Divino, MD**

Member, Scientific Program Committee
AMERICAN COLLEGE OF SURGEONS

Institutional Representative

ASSOCIATION OF ACADEMIC SURGERY

Member, Education Committee

ASSOCIATION OF PROGRAM DIRECTORS IN SURGERY

Burton P. Drayer, MD

Member, Board of Directors

RADIOLOGICAL SOCIETY OF NORTH AMERICA

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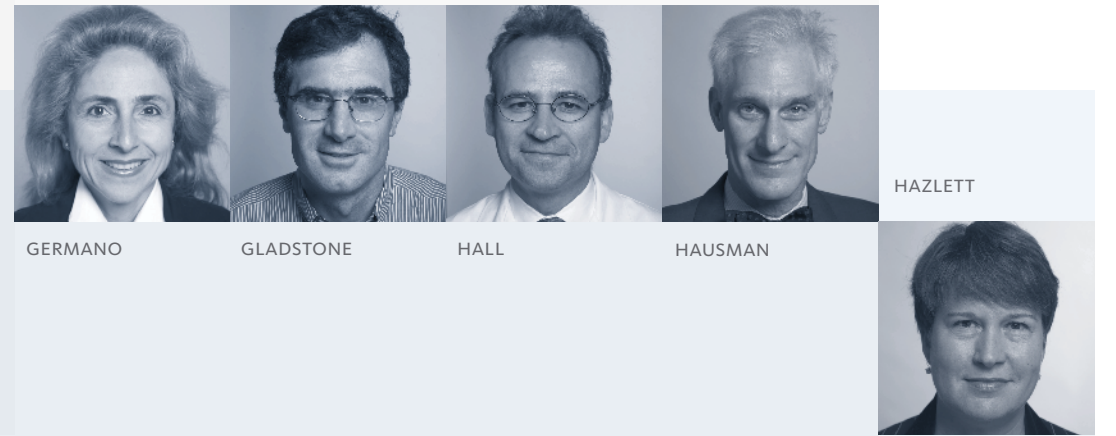
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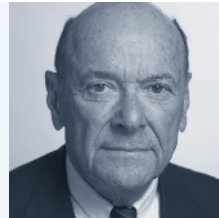
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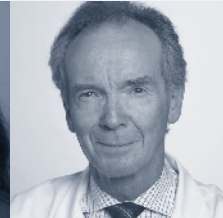
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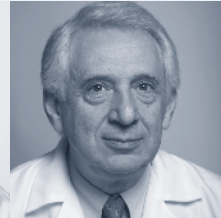
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