Transformation: 2002-2007

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In the 155-year life-span of The Mount Sinai Hospital, five years is barely a blink of the eye. Yet for the Samuel Bronfman Department of Medicine, one of the oldest departments of The Mount Sinai Medical Center, the five-year period from 2002 through 2007 has witnessed major transformation.
CHANGE BECAME A NECESSITY NOT AN OPTION

In late 2001 Paul Klotman, MD, Murray M. Rosenberg Professor of Medicine, was appointed Chairman of the Department of Medicine. Thanks to the outstanding leadership of Barry Coller, MD, the immediate past chair of the Department and current Vice President for Medical Affairs at Rockefeller University and Physician-in-Chief of the Rockefeller Hospital, there was a strong foundation upon which to build. Viewed strictly from the perspective of the Department, there was, as is always the case, room for improvement, but no imperative for change.

This internal change corresponded with a period of turmoil in the nation, especially in New York City; one of the most momentous changes in biomedical history, the completion of the Human Genome Project; and the most challenging financial period in Mount Sinai’s history. Change became a necessity not an option.

NEW YORK CITY: DEVASTATION —→ REVITALIZATION

In early 2002 many people doubted that New York City would ever be the same again. Media pundits questioned whether or not New York would be able to recover both physically and psychologically.

While the dire predictions for New York never came to fruition, the City is not the same. The changes may be subtle, but they are present. From day one, faculty and staff of The Mount Sinai Medical Center took an active role in the transformation of New York City from a traumatized city to one that is once again referred to by many as the greatest city in the world.

In the days immediately following the terrorists attacks, faculty and staff collected funds and supplies and went to Ground Zero to offer medical and psychiatric expertise and a helping hand. Before the dust had settled, faculty, led by individuals from the Department of Community and Preventive Medicine, began looking at the impact the toxic air had on workers and volunteers at the site. Through the Mount Sinai Workers and Volunteers Screening Program and other initiatives, experts in environmental medicine, post-traumatic stress disorder, pulmonary medicine, and other disciplines continue to care and advocate for individuals who are still suffering major health complications as a result of their selfless service at Ground Zero.

ANSWERING THE CALL TO SERVE

In the earliest days of The Mount Sinai Hospital the doors were flung open to care for Civil War soldiers. Founded as the Jews Hospital to care for Jewish immigrants in New York, the Hospital quickly expanded its mission to care for those fighting for their country. As they did in the 1850s and in the days after the September 11th Terrorist Attacks, the faculty and staff of Mount Sinai have consistently responded when the country has faced crisis.
BIOMEDICAL SCIENCES
The publication of the human genome simultaneously in *Nature* and *Science* in February of 2001 was a watershed moment for biomedical science. Even today the true impact of this momentous accomplishment cannot be fully anticipated.

When Dr. Klotman was inducted into the Murray M. Rosenberg Chair of Medicine in 2002 he said, “The greatest change in medicine in the last century has been the application of the scientific method to patient care. We moved from descriptive science to discovery of cause and effect... As the Human Genome Project moves toward completion, our focus is shifting from generalizing to individualizing diagnosis, therapy, and treatment based on genetic code or proteome.”

Since 2002 ongoing research is providing a glimpse of the future of medicine. Soon physicians will look to a patient’s genetic make-up and environment to determine the best treatment for the individual. The Samuel Bronfman Department of Medicine is among an elite group leading this transformation.

In April of 2006 *The New York Times* reported on a new genetic test to predict which patients with hepatitis C will eventually suffer liver scarring and so are most in need of treatment. Scott Friedman, MD, Irene and Dr. Arthur M. Fishberg Professor of Medicine and Chief of Mount Sinai’s Division of Liver Diseases, collaborated with Celera Genomics to develop this test. In the article he said, “The current therapies to treat hepatitis C are fairly noxious. One of the tough decisions we face as clinicians is who should be treated with current antiviral therapies and who can afford to wait.” This is one of the earliest examples of the potential applications of personalized medicine.

In another example, Michael Lipkowitz, MD, Associate Professor of Medicine, is working with the Department’s Personalized Medicine Program to predict the progression of kidney disease and effectiveness of therapy in subjects from the African American Study of Kidney Disease and Hypertension (AASK) Study. Using these techniques they hope to identify patients at risk for progressive renal disease and new targets for therapeutic interventions.

On January 8, 2007, the Department held a retreat to discuss implementation of this new approach to medicine in research, clinical care, and medical education. Plans are now being implemented throughout the Department to make the ideas discussed at the retreat reality. This includes creation of a biobank with 100,000 DNA samples connected to information about a person’s health condition and history.

Also early in 2007, the Charles Bronfman Institute for Personalized Medicine was established, providing resources and centralized structure for the advancement of this field of study.
ONE OF THE BIGGEST TURNAROUNDS IN MEDICAL HISTORY

The New York Sun, 2006
In December of 2001, the leadership of The Mount Sinai Medical Center was predicting a $125-150 million deficit by 2003 if drastic changes were not made. Today, not only is the Hospital profitable—a challenging feat in today’s health care climate—the School is profitable as well—a rare achievement among medical schools.

Much of the credit for this exceptional turnaround goes to Peter W. May, Chairman of the Boards of Trustees of The Mount Sinai Medical Center; Kenneth Davis, MD, CEO and President of The Mount Sinai Medical Center; and their leadership team. In 2006 the New York Sun reported on their success calling it “one of the biggest turnarounds in medical history.”

As the largest department in the Medical Center, the Samuel Bronfman Department of Medicine played a significant role. The Department worked with the institutional leadership to increase efficiency and improve operations, but most importantly to grow.

“By far the biggest unexpected challenges when I became Chair were the financial problems and instability,” said Dr. Klotman. “The Hunter Group, a consulting firm notorious for draconian cuts, came in and the institution had four deans and four CEOs in my first five years. The Department’s budget dropped three million dollars in the first year.”

Such uncertainty was expected to discourage housestaff and faculty recruitment, but the Department of Medicine actually grew during this period.

Based on each institution’s fiscal year: calendar year for MSH and academic year for MSSM prior to 2005. In 2005 and 2006, calendar year for both institutions.
INDICATORS OF OUR GROWTH INCLUDE:

15,422 MEDICAL Admissions in 2001 increasing to 18,594 in 2006
INCREASED COMPLEXITY OF MEDICAL CASES AS INDICATED BY A MEDICAL CASE MIX INDEX OF 1.468 IN 2001 AND 1.686 IN 2006

GROWTH IN RESEARCH FROM $37.8 MILLION IN NIH FUNDING IN 2001 TO $63.6 MILLION IN 2006

CONTINUED INCREASES IN THE REPUTATION AND QUALITY OF THE INTERNAL MEDICINE RESIDENCY AND RECRUITMENT OF EXCEPTIONAL FACULTY HIGHLIGHTED IN THIS REPORT.
Guggenheim Pavilion Atrium at The Mount Sinai Medical Center.
Throughout the turnaround period The Mount Sinai Medical Center continued to pursue excellence in all its missions. Several objective measures demonstrate the success of these efforts:

The Mount Sinai Hospital was designated a Magnet Hospital for Nursing Excellence in 2004 by the American Nurses Credentialing Center (ANCC) of the American Nurses Association.

Mount Sinai School of Medicine received an outstanding review from the Liaison Committee on Medical Education, the accrediting authority for MD-preparation programs in the US and Canada. The School was awarded special commendation in six areas.

MOUNT SINAI SCHOOL OF MEDICINE’S PHD PROGRAM WAS RANKED THIRD AMONG 53 FREESTANDING MEDICAL SCHOOL’S AND RESEARCH INSTITUTIONS IN A NATIONWIDE SURVEY CONDUCTED BY ACADEMIC ANALYTICS.

THE JOINT COMMISSION ON ACCREDITATION OF HEALTHCARE ORGANIZATIONS AWARDED THE MOUNT SINAI HOSPITAL A 91 OUT OF A POSSIBLE 100, GIVING THE HOSPITAL HIGH MARKS IN ALL ASPECTS OF PATIENT CARE & STAFF ATTITUDE.

IN 2006 NEW YORK MAGAZINE PUBLISHED THE FIRST RANKING OF 199 HOSPITALS IN THE NEW YORK METRO AREA.

MOUNT SINAI WAS THE HIGHEST RANKING SINGLE HOSPITAL FACILITY.
Faculty Compensation Transformed

Aligning faculty compensation with individual contributions to the missions of the Department of Medicine and The Mount Sinai Medical Center has been crucial to the Department’s success. Introduced in July, 2003, the Department of Medicine Compensation Plan provides a transparent, equitable, and incentive-based method to reward faculty for increased productivity.

Faculty become eligible for various incentives based on their clinical, research, teaching, and administrative productivity. In 2006 a new overhead system was instituted in the Department Faculty Practice Associates to further incent clinical productivity. In the new model the Departmental taxes paid by an individual physician decrease as productivity increases. The results are similar to private practice; more productive faculty members earn more.

With implementation of this plan and several initiatives to increase efficiency throughout the Department, it was possible to increase faculty salaries in the absence of any increase in the Departmental budget.

Today, the Medical Center is in the midst of implementing a strategic plan designed to take it from being a very good academic medical center to being among the few that can justly be called great.

Plans are under way for a new research tower that will provide the space to recruit 100 new faculty members.
Today, not only is the Hospital profitable – a challenging feat in today's health care climate – the School is profitable as well – a rare achievement among medical schools.

Plans are under way for a new research tower that will provide the space to recruit 100 new faculty members.

DR. PAUL KLOTMAN
Chairman of the Samuel Bronfman Department of Medicine
Always a strong program, over the last few years the Mount Sinai Internal Medicine Residency Program has increasingly been recognized as among the best in the country. The top graduates from the highest-ranked medical schools compete for positions in the Program. Graduates successfully compete for the most prestigious academic fellowship positions nationwide.

“My goal when I became Chairman was to take what was already a very good residency program and dedicate it to the training of future academic leaders,” says Dr. Klotman. “While Mount Sinai always attracted students from the most prestigious schools, today we attract the top students from these schools, including many with one or more advanced degree in addition to their MD.”

The Class of 2009 includes nine MD/PhD graduates, more than any other program in the country.

The transformation began with the appointment of Mark Babyatsky, MD, The Richard and Mortimer Bader Professor of Medicine, as Vice Chair for Education in the Department and Director of the Residency Program. "When Paul and I discussed his vision for the Residency Program he was very clear, he wanted our graduates to be the best possible candidates to join our faculty and serve as leaders in academic medicine," said Dr. Babyatsky. “Today, when I interview a prospective resident, I don’t ask myself if the person would be a good resident. Instead I question whether he or she would be a good colleague.”
Drs. Babyatsky and Klotman started by reorganizing the teaching service to create a smaller team structure and closing the teaching rooms so that the primary venue for teaching is at the bedside. Teachers are selected based on the quality of reviews of their teaching skills. Rare among academic medical centers, the compensation plan includes specific pay and incentives for teaching so that faculty can focus 100% on teaching during dedicated teaching time without competing priorities.

Expanding research opportunities for residents has been another priority. An innovative Mentorship Committee helps each resident find a suitable mentor to conduct research that matches his or her career goals. House staff research projects culminate with presentations and posters at the Annual Department of Medicine Research Day, offering residents and fellows the opportunity to hone their presentation skills in preparation for future attendance at scientific meetings.

While all residents are required to conduct research, there is also a separate Research Track for residents who are committed to basic or translational research academic careers. The six- or seven-year program merges the traditional clinical training of the internist with the research training of the basic scientist. Internship, residency, and fellowship training in Internal Medicine and its subspecialties are combined and integrated with post-doctoral fellowship laboratory training.
“Today, when I interview a prospective resident, I don’t ask myself if the person would be a good resident. Instead I question whether he or she would be a good colleague.”

Dr. Mark Babyatsky
Program Director
Mount Sinai is a national leader in the integration of genomics into medical education. The Department was one of the first in the country to offer a Medicine/Genetics joint residency program; genomics is already being integrated into the curriculum for all residents; and Dr. Babyatsky has received a major grant to lead the integration of clinical genomics into internal medicine nationally.

Along with academic rigor, the leadership of the Internal Medicine Program recognizes the critical importance of humanism in medicine. The Advancing Idealism in Medicine program is a resident-driven initiative that helps residents focus on how they perceive their patients, their profession, and themselves.

All second-year residents participate in Mount Sinai’s Visiting Doctors Program, the largest home visit program in the nation. During a one-month rotation residents see patients in their homes, gaining a better understanding of the many factors that contribute to the patient’s condition and his or her ability to comply with medical directives. In small groups, residents discuss literature, art, and other fields that open their eyes to new ways of viewing medicine and patients. Each resident also completes a creative project during this rotation.

Through the Global Health Center, residents have the opportunity to travel to underserved areas around the world to provide care and conduct research. Similar projects are also available to residents in Mount Sinai’s own community of East Harlem.

For residents who wish to pursue careers as leaders in International Health, there is a new ACGME-approved Global Health Track. During their PGY2 year, participants attend a monthly seminar. In their PGY3 year, there is a two-week intensive curriculum and then participants spend two months or more abroad participating in research activities, beginning work that they can continue throughout their career. An MPH program with specialization in global health is also available to residents and fellows.
Quality and safety have always been essential elements of patient care. But, it is only in recent years that the tools of research and significant resources have been applied to understand what these really mean and how to achieve them.

“Quality is currently very similar to Justice Stewart’s comment on pornography, ‘I know it when I see it,’” according to Navneet Kathuria, MD, Associate Professor of Medicine and Vice Chair for Quality in the Department of Medicine. “As physicians, we need to take the lead and start defining objective measurements before others, with less knowledge of patient care and the health care system, start doing it for us.”

To encourage rigorous research geared toward evaluating systems issues in clinical care and integrating a systems approach to quality and safety into medical training at all levels, Dr. Klotman set aside funds provided by the Department’s Advisory Board. Grants are awarded to residents and fellows to conduct research in this area. Far from esoteric, these studies address practical questions and develop solutions that are then implemented throughout the Department. As a result of one project, a multidisciplinary team established evidence-based guidelines for the use of telemetry beds, which resulted in improved patient flow. The Department has also developed a Patient Safety and Quality Curriculum that is incorporated into the Residency Program.

Representatives from all the divisions within the Department of Medicine, nursing, and other areas participate in the Advancing Clinical Excellence in Medicine Committee (ACEM). “Having key representatives from all areas at one table allows us to focus on systemic issues and develop solutions that work for every discipline,” said Dr. Kathuria.

Established in 2005, the ACEM has already addressed numerous issues including creating a new system for inter-hospital transfers that ensures updated information on a patient’s status is obtained on the day of transfer; developing a process to follow up with patients and their physicians when critical test results are received after discharge; establishing a near-miss and medical error conference for the house staff; and improving inpatient management of diabetic patients.

“For years many physicians thought quality and safety were administrative issues addressed through checking boxes on some form,” said Dr. Kathuria. “We are changing the culture to make quality and safety central components of every aspect of patient care.”
Five years ago the faculty practices of the Department of Medicine were a loose confederation of independent entities run by the divisions.

“When I became Chair of the Department, there were talented clinicians working in the practices, but without proper infrastructure and support there was little room for growth,” said Dr. Klotman.

Still a work-in-progress, there have been tremendous advances in building an infrastructure and bringing the practices together to form one, cohesive practice where patients can come for everything from an annual exam to management of chronic diseases.

Much of the work done to date has been on the operational side, improving billing functions, bringing together the front and back ends for a more seamless flow of information, and updating technology. In January of 2007, a new scheduling and billing system was instituted in all the practices that is already leading to further improvements. Work is currently underway to transition to electronic medical records, an advance that will open up many new possibilities.

Recruitment has also been a significant priority. When Dr. Klotman became Chair, there were needs throughout the Department for master clinicians. Locally-, nationally-, and internationally-renowned physicians have been recruited for many specialties including Douglas Dieterich, MD, a hepatologists and gastroenterologist with particular expertise in HIV/hepatitis C co-infection; Maria Abreu, MD, a gastroenterologist who directs the Inflammatory Bowel Disease Center; Michael Mullen, MD, an infectious disease specialist with specific focus on HIV; Timothy Harkin, MD, a pulmonologist who runs the Interventional Bronchoscopy Service; and Tracy Breen, MD, an endocrinologist who directs the Diabetes Center. Primary care services had, of course, always been offered, but they were in a separate location. Jennifer Kent, MD, and Vinisha Patel, MD, were recruited to build primary care services within the Faculty Practice Associates building.

“The one change that has had the greatest impact within the practice was the designation of a physician leader,” according to Dr. Klotman. Stephen Sigworth, MD, Associate Director of FPA Services, is dedicated full-time to growing the practice and enhancing services to both physicians and patients.
“THE ONE CHANGE THAT HAS HAD THE GREATEST IMPACT WITHIN THE PRACTICE WAS THE DESIGNATION OF A PHYSICIAN LEADER.”

Dr. Paul Klotman, Chairman

DR. STEPHEN SIGWORTH, Associate Director of FPA Services, is dedicated full-time to growing the practice and enhancing services to both physicians and patients.
With the establishment of the Charles Bronfman Institute for Personalized Medicine in early 2007 under the leadership of Dr. Böttinger, Mount Sinai is clearly positioned to be a leader in this field.
PROVIDING THE RESOURCES FOR SUCCESS

Ranked 17th among all departments of medicine in the nation in funding from the National Institutes of Health (NIH) for 2006, research programs in the Department of Medicine are growing rapidly. Each division within the Department of Medicine has its unique areas of strength. These are highlighted throughout this report. Such individual strengths are essential building blocks, but insufficient for today’s cutting-edge research which requires the asking of complex questions that bring together many disciplines and massive data sets. The infrastructure of the past, based mostly in individual laboratories, cannot meet the current needs.

Building the expertise and resources essential to large-scale, multi-disciplinary translational research has been a major focus of the Department of Medicine over the last several years. Outstanding candidates have been identified by the division chiefs and brought in as new recruits to build research in almost every area within the Department. Many of these new recruits are spotlighted throughout this report.

Erwin Böttinger, MD, the Irene and Dr. Arthur M. Fishberg Professor of Medicine, a physician-scientist specializing in kidney disease and genomics research, joined the Department in 2004 as Vice Chair for Research. He works closely with Dr. Klotman to define and implement a strategic vision for research across the Department.

In response to the growing complexities of implementing clinical trials, the Clinical Trials Office (CTO) was created in 2004. Under the direction of Marie Teil, MD, Assistant Professor of Medicine, the CTO works with researchers and clinical trial sponsors to set up and oversee trials, providing a central knowledge base that frees investigator time to concentrate on the scientific aspects of their research.

In 2006 Mark Woodward, PhD, Professor of Medicine and an international authority in epidemiology, was recruited to establish and direct a core group within the Department focused on epidemiology and biostatistics.

Even with abundant institutional resources, all researchers today face significant funding challenges. With the budget of the NIH stagnant and no increase on the horizon, competition for grants is intense. “The last time the NIH budget was flat for several years in the 1980’s, academic medicine lost countless leaders,” said Dr. Klotman. “We can’t afford to let this happen again.”

The Department established a bridge funding initiative in 2006 to support outstanding researchers caught in this critical budget crisis. Researchers who receive good reviews of grants submitted to NIH but are not funded, apply to a committee within the Department for funds to help support their work until the next funding cycle.

In such a tight funding environment support for risky, innovative, new approaches is usually the hardest to find. With funding from the Department’s Advisory Board, Dr. Böttinger launched an Innovation Grants Program to provide seed funding for novel projects in basic and clinical research.
STRATEGIC PLAN
Mount Sinai School of Medicine’s Strategic Plan was developed under the leadership of Dennis Charney, MD, Dean of Mount Sinai School of Medicine, to take the institution from its current status as a very good research center to a great one. The creation of seven disease-oriented and four basic science institutes that cross departmental and specialty lines is a cornerstone of this plan. Many of these institutes will be led and staffed by faculty from the Department of Medicine.

One of these institutes, the Charles Bronfman Institute for Personalized Medicine, received significant support in early 2007 from the Andrea and Charles Bronfman Philanthropies. The gift of $12.5 million established and named the Institute under the leadership of Dr. Böttinger. “The unique seamless relationship between our Hospital and School facilitates research in personalized medicine and supports the immediate translation of our advances to benefit our patients on a clinical level,” said Dr. Böttinger.

In an article in the Wall Street Journal on April 6, 2007, Mr. Bronfman said, “In an industry like medicine, where market forces are slow to change, philanthropy must play the role of catalyst.”
A NOVEL APPROACH TO PHILANTHROPY

With a membership of more than thirty business leaders from a broad range of industries, the Advisory Board of the Department of Medicine is far more than a means of attracting philanthropic support. The members of the Board partner with Dr. Klotman to support and advance the missions of the Department.

A unique group of dedicated volunteers who share an intellectual curiosity about medicine and the business side of healthcare, Advisory Board members are committed to understanding and promoting the Department’s priority programs.

Board members make an annual financial commitment, which is used to support priority programs within the Department, and commit an even more valuable commodity, their time. Quarterly meetings are designed to educate and expose members to cutting-edge initiatives and developments in medicine with the goal of identifying and building opportunities for involvement surrounding their personal interests. Meetings also serve as opportunities for members to network with each other, with physician leaders from the Department of Medicine and the Medical Center, and with members of the Boards of Trustees of The Mount Sinai Medical Center.

As a result of increased knowledge and involvement, many members have made targeted, capital-level investments to support priority programs, including personalized medicine, quality improvement, emerging pathogens, and diabetes.

Of particular value to the advancement of research, Board members understand the need to take risks for true progress. For example, two years ago, Alex Federman, MD, Assistant Professor of Medicine, had an idea to help his elderly patients navigate the often confusing array of choices for Medicare Part D Prescription Drug Plans. As with most ideas, time and resources were needed to translate his thought into action. Dr. Federman applied for and received an Advisory Board grant. The result: a new program to help elderly patients and a five-year National Institutes of Health grant to further develop the model.

For many Board members, their children were born at Mount Sinai or it is simply their neighborhood hospital, but they previously have not had any substantive connection to the institution. The Advisory Board serves as an entry portal for long-term, meaningful involvement with Mount Sinai.

Members of the Department of Medicine Advisory Board as of June 30, 2007 are listed to the left and continued on the right.

**Ari Storch**  
Highbridge Capital Management, LLC

**Jody Storch**

**Ashok Varadhan**  
Goldman, Sachs & Co.

**Maggie Varadhan**

**Jeffrey A. Weber**  
York Capital Management, LLC

**Stacey Gillis Weber**

**Thomas G. White**  
Bank of America

**Paula White**

*Membership list is as of June 30, 2007.*
"Mount Sinai Heart is the model for preventing, treating, and eradicating heart disease."

Dr. Valentin Fuster
In April of 2006, Mount Sinai Heart was created under the leadership of Valentin Fuster, MD, PhD, Richard Gorlin, MD/Heart Research Foundation Professor, Director of the Zena and Michael A. Wiener Cardiovascular Institute and the Marie-Josée and Henry R. Kravis Center for Cardiovascular Health, and Chief of the Division of Cardiology.

Mount Sinai Heart is a multidisciplinary effort that brings together expertise in cardiology, cardiovascular surgery, vascular medicine, pediatric cardiology, cardiac anesthesiology, medical education, research, and community service. It features state-of-the-art facilities for patient care, advanced laboratories for scientific research, and leading-edge programs for postgraduate education of clinician-scientists.

According to Dr. Fuster, who is currently President of the World Heart Federation, “Mount Sinai Heart is the model setting for preventing, treating, and eradicating heart disease.”

By All Measures, Superior Patient Care
Nearly all patient care services provided by the Division of Cardiology have experienced growth over the past several years, including a 30 percent increase in cardiac catheterizations, a 25 percent upswing in echocardiography procedures, 17.5 percent increase in electrophysiology cases, and a 20 percent increase in referrals to the vascular laboratory.

Cardiac Catheterization—Safety in Numbers
According to the New York State Department of Health, Samin K. Sharma, MD, Zena and Michael A. Wiener Professor of Medicine and Director of the Cardiac Catheterization Laboratories, has maintained the highest angioplasty success rate for an interventional cardiologist in the state every year since 1994.

In May 2005 Mount Sinai renovated and expanded its cardiac catheterization and electrophysiology laboratories, including patient preparation and recovery areas. In a first-of-its-kind arrangement for the New York metropolitan area, the facility provides a single location that encompasses five rooms for cardiac catheterization and angiographic intervention, two rooms for electrophysiology procedures, eight patient-intake beds, and a 20-bed patient recovery area.

The volume of procedures performed in the cardiac catheterization laboratory is growing at an astonishing rate, while complication rates remain extremely low. Over 5,000 cardiovascular interventions were performed in 2006, the highest in the Northeast region, making it one of the top-six performing laboratories in the nation.

To increase opportunities for residents of East and Central Harlem to access this high level of care, a cardiac catheterization laboratory was opened in 2005 at North General Hospital, an affiliate of Mount Sinai located in the heart of East Harlem. Services at Mount Sinai-affiliate Elmhurst Hospital Center, located in Queens, have also been expanded. The catheterization laboratory there is now performing percutaneous coronary intervention.

Taking Research to the Bedside…and Beyond
Several years ago, Division faculty followed heart attack survivors in the longest-ever clinical trial designed to determine the best approach to preventing a second heart attack or stroke by administering anti-clotting agents.

The results of this research are now a standard part of care for heart attack victims. Division faculty continue to develop and redefine state-of-the-art care through cutting-edge research.

Cardiovascular Research Center
The Cardiovascular Research Center at Mount Sinai was created in 2006 to bridge basic and translational research, applying the results to advance cardiac care.

Leading the Cardiovascular Research Center’s efforts is new faculty recruit Roger J. Hajjar, MD,
DR. ROGER HAJJAR, Director of the Cardiovascular Research Center, is currently the primary investigator for a multicenter, phase I clinical trial examining the safety and efficacy of gene therapy developed specifically for patients with heart failure.
Professor of Medicine. Dr. Hajjar’s groundbreaking research uses cellular gene therapy to deliver therapeutic genes directly into the heart. He is currently the primary investigator for a multi-center, phase I clinical trial examining the safety and efficacy of gene therapy developed specifically for patients with heart failure. “This technique could completely change the whole approach to treating heart failure,” Dr. Hajjar explains.

**Pinpointing Plaque to Save Lives**

In a clinical study published in *Nature Medicine* in early 2007, principal investigator Zahi A. Fayad, PhD, Professor of Radiology and Medicine, and his team used contrast-enhanced CT imaging to pinpoint dangerous arterial plaque before a heart attack or stroke occurred.

“For the first time, we may be able to predict and prevent adverse events using a non-invasive technique,” reports Dr. Fayad.

Several years ago Dr. Fayad worked with Dr. Fuster and colleagues at Mount Sinai to develop “black-blood” MRI, a technique that provides the most detailed images yet recorded of the walls and main channels of human coronary arteries in living subjects. Ultimately, this form of imaging could be used to evaluate vessels throughout the body.

Building on Mount Sinai’s achievements in cardiac imaging, Mario Garcia, MD, Professor of Medicine, was recruited in 2006 to serve as Director of Non-Invasive Cardiology. Previously of the Cleveland Clinic Foundation, Dr. Garcia is leading the coordination and development of multiple imaging technologies at Mount Sinai and creating a new fellowship program in cardiovascular imaging.

**Translational Research in Cardiovascular Thrombosis**

In a study led by Juan Jose Badimon, PhD, Professor of Medicine, published in the *Journal of the American College of Cardiology* in 2005,

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The Division boasts the lowest risk-adjusted mortality rates in New York State for coronary interventions, and has held this ranking for over a decade.
“FREEDOM” TRIAL: TARGETING OPTIMAL TREATMENT FOR DIABETES & HEART DISEASE

Patients with diabetes are known to be at high risk for developing cardiovascular disease. But what are the best ways to manage and treat these patients? That question is at the heart of the Future Revascularization Evaluation in Patients with Diabetes Mellitus: Optimal Management of Multivessel Disease (FREEDOM) trial.

Dr. Fuster is the principal investigator for this $25 million, five-year award, one of the largest single grants ever awarded by the National Heart, Lung, and Blood Institute of the NIH. To manage this study, Dr. Fuster recruited Michael E. Farkouh, MD, Associate Professor of Medicine, in 2006. Dr. Farkouh has extensive experience leading large, multi-center clinical trials.

The multicenter study, which focuses on patients with diabetes and multivessel coronary disease, has several components. The investigators will recruit 2,400 patients to participate in a clinical trial comparing the effectiveness of percutaneous coronary intervention (PCI; also known as angioplasty) with drug-eluting stents versus the current standard of care, coronary artery bypass graft (CABG) surgery.

The five-year trial is expected to be the definitive study to determine the best clinical practice for these patients.

In addition, the study will recruit 2,000 additional patients with diabetes and cardiovascular disease into a registry that will broaden the clinical implications of the results of the trial.

“This new program will reach far beyond the confines of any single institution or study,” Dr. Fuster says. “Our findings, the consortium we are building, and the registry we are creating will serve as a foundation upon which numerous NIH-funded studies will be based in the coming years.”

The research group led by Pedro R. Moreno, MD, Associate Professor of Medicine, demonstrated that advanced, complex plaques create their own blood supply by forming tiny capillaries. Halting or reversing their development constitutes a novel target in the fight against heart disease.

Another important perspective on the causes of atherosclerosis involves a group of proteins called chemokines that are secreted by inflammatory cells. In 2006, a team led by Alison D. Schecter, MD, Assistant Professor of Medicine, identified several potential therapeutic targets involving interactions between the immune and cardiovascular systems.

**Education and Training**

The teaching focus within the Division of Cardiology ranges from the acclimation of first-year medical students to providing accredited continuing medical education to experienced physicians practicing in the community.

The Division offers two accredited cardiology fellowship programs specifically designed to train cardiologists who will become leaders in cardiology research and in patient care, particularly within an urban community. More than a thousand applicants apply annually to fill ten open positions.

The Division also offers specialized courses, mini-residencies, conferences, and seminars that attract trainees and practicing cardiologists from around the world. Cardiology faculty participate in three continuing medical education symposia conducted by Mount Sinai each year—one on interventional cardiology, a second on acute coronary events, and a third on general cardiovascular medicine.

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In January of 2007, DR. IRA NASH was appointed Vice Chair for Veterans Affairs for the Department of Medicine and Chief of Internal Medicine at the James J. Peters VA Medical Center in the Bronx. The Bronx VA, the first VAMC in New York City, has been affiliated with Mount Sinai School of Medicine for decades. In his new role, Dr. Nash is strengthening the ties between the two institutions, enhancing the quality of care, and strengthening the educational experience for residents and fellows.
DR. LLOYD MAYER’S research into gut immunology may help patients suffering from inflammatory bowel disease and related autoimmune disorders.
**The Division of Clinical Immunology is highly regarded for its superior leadership in immunobiological research and patient care. Patients travel from all over the United States—and around the world—seeking the expertise of Mount Sinai immunologists, fueling a 25 percent upsurge in faculty practice revenues over the past three years. In research support, funding from the National Institutes of Health to the Division more than doubled between 2002 and 2006.**

In terms of education and training, Lloyd Mayer, MD, Dorothy and David Merksamer Professor of Medicine, Chief of the Divisions of Clinical Immunology and Gastroenterology, and Director of the Center for Immunobiology, notes that the Division’s reputation consistently attracts exceptional candidates to compete for places in its fellowship program.

**Leading the Way**

Mount Sinai’s involvement in the new science of immunology began in the 1920s. That’s when Dr. Gregory Schwartzman, a Mount Sinai physician and researcher, first developed the concept of immune system hypersensitivity, a condition that later became known as the “Schwartzman Phenomenon.”

In the years spanning from Dr. Schwartzman’s work on hypersensitivity, to the Division’s contemporary status as the leading center in the country for research into primary immune deficiency disorders, numerous other discoveries about immune-related disorders have been made by gifted and dedicated researchers and clinicians at Mount Sinai.

**Primary Immune Deficiency Diseases**

Much of the cutting-edge investigation into the more than 70 primary immune deficiency disorders has been spearheaded by Charlotte Cunningham-Rundles, MD, PhD, Professor of Medicine. Her pioneering scientific inquiries into this area have helped make Mount Sinai a major referral center for primary immune deficiency diseases, and continues to spark NIH support for this pivotal area of investigation.

In 2004 Dr. Cunningham-Rundles was awarded a program project grant from the NIH to develop unique models of primary immune deficiency diseases to study the distinct stages of B cell maturity and function.

“The program is visionary in scope. Such a global approach to a complex set of diseases is bound to yield immensely valuable information regarding both immunodeficiency and the normal regulation of immunity,” remarked Dr. Mayer upon learning of the NIH award.

Dr. Cunningham-Rundles is also the principal investigator in another NIH-funded program project grant focused on the analysis of immunodeficiency patterns in racial and ethnic groups, employing sophisticated computer screening methods. She was recently elected President of the prestigious research consortium, the United States Immunodeficiency Network (USIDNET), which advances research into primary immune deficiency diseases and funds peer-reviewed research grants in this area.

**Immune System Function**

Dr. Mayer is also the recipient of a significant grant from the NIH that combines his tandem interests in immunology and gastroenterology to the study of innate and adaptive immune interactions in the human digestive system. Dr. Mayer and colleagues are investigating the diverse mechanisms involved in controlling the inflammatory process. These include immune and nonimmune factors that interact to suppress inflammation in the gut. It is expected that this research will have translational value for patients suffering from inflammatory bowel disease (IBD) and related disorders.
Recently, Drs. Mayer and Cunningham-Rundles were awarded the prestigious Jeffrey Modell Foundation Lifetime Achievement Award for their contributions to the field of Immunology.

Another important area of investigation within the Division is the role that T cells and related factors play in the earliest stages of immune responses to infection. Julie Magarian Blander, PhD, who joined the Division in 2006 as an Assistant Professor of Medicine, published a study in Nature in 2006 that provided insights into how structures known as toll-like receptors (TLRs) are activated to orchestrate the appropriate immune response\(^1\). “With results from this research,” says Dr. Blander, “it may be possible to identify ‘breakpoints’ during disease progression and work toward finding microcellular solutions to mend them.”

Also recruited in 2006, Christopher Dascher, MD, Assistant Professor of Medicine, is investigating cell surface molecules known as CD1. In a 2005 paper published in the Proceedings of the National Academy of Sciences\(^2\), he demonstrated that these molecules appear very early in the evolutionary history of terrestrial vertebrates and therefore clearly play a long standing regulatory role in immune response.

**Asthma & Allergy Research and Treatment**

There is a strong emphasis within the Division on the study of the underlying causes of asthma and allergies, and on the evaluation of new treatments for this disorder.

Beth E. Corn, MD, Assistant Professor of Medicine, has participated in numerous clinical trials of medications for the treatment of asthma and allergic rhinitis currently on the market. Dr. Corn, who is director of the Allergy/Asthma Clinic and a member of the Asthma Program, was elected as President of the New York Allergy and Asthma Society in 2006.

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\(^1\)Nature. 2006 Apr 6;440(7085):808-12.  
DR. CHARLOTTE CUNNINGHAM-RUNDLES is President of the prestigious research consortium, The United States Immunodeficiency Network (USIDNET).
When it comes to asthma pathophysiology, researchers have come to understand that hypersecretion of mucus plays an important role in the pathogenesis and severity of the disease. However, the central question is, what causes this hypersecretion?

It had been known that a cytokine called tumor necrosis factor-alpha (TNF-alpha) increases airway mucus gene expression in vitro. However, in a 2005 paper published in the *Journal of Allergy and Clinical Immunology* 3, Paula Busse, MD, Assistant Professor of Medicine, was the first to demonstrate that this also occurs in vivo in two mouse strains. Citing scientific precedent, Dr. Busse stated that blocking the effects of TNF-alpha may prove successful in asthma treatment, just as it has in a number of other chronic inflammatory diseases.

Mount Sinai’s Jaffe Food Allergy Institute is one of the leading centers in the world for clinical care and research on food allergies. Currently, a multidisciplinary team has been assembled that includes renowned food allergy expert Hugh Sampson, MD, Professor of Pediatrics, and faculty from the Division of Clinical Immunology, the Department of Pediatrics, and the Jaffe Food Allergy Institute.

The team is leading a project to examine the basic immunologic mechanisms of food allergy in humans and animal models. The results are expected to produce insights into multiple allergic mechanisms in humans that, in turn, may lead to the development of new strategies to treat and prevent these disorders.

**Training Physician-Scientists**

Under a ten-year NIH training grant, the Division partners with allergists in the Department of Pediatrics to prepare highly-trained pre- and postdoctoral candidates to become outstanding academic scientists in the field of Immunobiology.

Through laboratory and didactic training, working in translational research programs relating to cytokine biology, HIV-related disorders, autoimmunity and primary immunodeficiency, these trainees acquire the intellectual and technical skills needed to advance the specialty at Mount Sinai and elsewhere.

The program is one of the most sought after by trainees graduating from prestigious institutions, says Dr. Mayer, because of the enormous growth that is occurring in the basic sciences at Mount Sinai; its overall excellence in research; diverse patient population; a protective and nurturing mentoring environment; and an unequivocal commitment to postdoctoral fellowship training.

Dr. Julie Magarian Blander, published a study in *Nature* in 2006 that provided insights into how structures known as Toll-like receptors (TLRs) are activated to orchestrate the appropriate immune response.
Dr. LeRoith is the former head of the Diabetes Branch of the National Institute of Diabetes and Digestive and Kidney Diseases, the largest program devoted to the study of diabetes within the NIH.
Derek LeRoith, MD, PhD, is a world-renowned diabetologist who has been spearheading significant growth within the Division of Endocrinology, Diabetes and Bone Disease since joining Mount Sinai in 2005 as Division Chief and the Lillian and Henry M. Stratton Professor of Endocrinology.

Dr. LeRoith is the former head of the Diabetes Branch of the National Institute of Diabetes and Digestive and Kidney Diseases, the largest program devoted to the study of diabetes within the NIH. Under his leadership, the Division is growing rapidly, adding new faculty members and increasing both clinical and research activity.

Diabetes Center: Addressing a Growing Epidemic

The East Harlem community served by Mount Sinai has one of the highest diabetes rates in the country. One of Dr. LeRoith’s first actions as chief was to establish a Diabetes Center at Mount Sinai. Faculty members at the Center provide comprehensive outpatient and inpatient care, conduct clinical, basic, and translational research, and reach out to the community to provide education aimed at disease prevention.

Much of the faculty recruitment in the past couple of years has been targeted to enhancing the Division’s clinical expertise in diabetes. This has included the recruitment of Tracy Breen, MD, Assistant Professor, in 2006 as Clinical Director of the Diabetes Program; Dina Green, MD, Assistant Professor, and Ronald Tamler, MD, PhD, Instructor.

The Diabetes Center continues to build upon Mount Sinai’s historic leadership in this field. For example, the first metabolic clinic in New York City (and only the second in the nation) was established at Mount Sinai, as was the first prenatal clinic for gestational diabetes in New York City.

According to Dr. LeRoith, “our Diabetes Center is expanding rapidly to meet the needs of our patients—and especially members of our local communities. In addition to endocrinologists and diabetologists, we have added nurse practitioners, registered dieticians, and certified diabetes educators to enhance patient care and outreach as much as we possibly can.”

A new patient care initiative that has already begun to bear fruit is the screening for diabetes of all patients who are admitted to The Mount Sinai Hospital, regardless of their admitting diagnoses.

“The outcomes of such patient screenings are impressive,” Dr. LeRoith says. “More patients are being newly diagnosed who require diabetic care, and patients previously diagnosed with diabetes are having their blood glucose aggressively controlled within the Hospital and after discharge. This is proactive medicine at its best.”

Patients admitted to the Hospital who already have a diagnosis of diabetes also receive added attention. The average length of stay for patients with diabetes is significantly longer than for other patients. However, by aggressively managing patients’ glucose levels while they are in the Hospital, they are able to be discharged sooner and return to the comfort of their own homes.

The Diabetes Clinical Trials Unit—an integral part of the Diabetes Center—was established in 2006 to study new medications for patients with both type 1 and type 2 diabetes. Research and trials conducted within the Clinical Trials Unit offer patients early access to newly introduced or developing medications such as inhaled insulin and incretin-mimetic agents.

The strong link between obesity and diabetes as well as other serious conditions was one of the compelling factors behind the creation of the Mount Sinai Weight Management Program. Robert Yanagisawa, MD, Assistant Professor, joined the faculty in 2004 as Director of the program. Research in obesity was also expanded with the recent recruitment of Assistant Professors Shoshana Yakar, PhD, and Christopher Buettner, MD, PhD.
The East Harlem community served by Mount Sinai has one of the highest diabetes rates in the country. The Diabetes Center is working to bring down these rates through clinical care, patient education, and outreach to the community.
A Proud History... A Promising Tomorrow

Historically, Mount Sinai physicians were responsible for developing the first test for glucose in the urine and the first use of oral medications to treat diabetes. Former Chair of the Department of Medicine, Solomon Berson, MD, and Rosalyn Yalow, MD, Distinguished Service Professor, revolutionized endocrinology with the development of the radioimmunoassay in 1957. For the first time, scientists could measure the amounts of specific hormones in the blood. Dr. Yalow accepted the Nobel Prize for their work in 1977, five years after Dr. Berson’s death.

Today, Division faculty members build on this legacy with innovative research on diabetes, prostate and thyroid diseases, and osteoporosis. Dr. LeRoith’s research interests center on the study of insulin and insulin-like growth factor (IGF). He and the research team he has built at Mount Sinai are currently investigating the role of IGFs in the development and proliferation of cancer. He has made major contributions to understanding the functional roles of IGF-1 and insulin receptors in metabolic dysfunction, and especially in type 2 diabetes mellitus.

His work has major implications in other fields as well, particularly as it addresses the relationship between metabolic disorders. Recently, using mouse models of type 2 diabetes, Dr. LeRoith’s research group has begun studying the effect of diabetes on bone disease.

A 2006 paper in Carcinogenesis\(^1\) by Alice Levine, MD, Associate Professor of Medicine, and colleagues at Mount Sinai, explored inherent anatomical and physiological differences between the cells of the human prostate’s peripheral versus transition zones. These differences may explain the heightened tendency of the peripheral zone of the prostate to become cancerous in response to androgens. Further investigation into these differences is expected to lead to new chemopreventive strategies for prostate cancer.

Terry Davies, MD, Florence and Theodore Baumritter Professor of Medicine, and colleagues were the first to publish results of the successful isolation of a mouse antibody that stimulates the thyroid gland to secrete excessive amounts of thyroid hormone. Such antibodies are the cause of Graves’ disease. The paper, published in the Journal of Clinical Investigation\(^2\) in 2005 prompted additional research into developing novel treatment strategies aimed at controlling excessive thyroid hormone production.

\(^1\)Carcinogenesis. 2006; 27:216-24.
\(^3\)Cell. 2006; 127:1080-1081.
Dr. Davies and his research team recently moved to new laboratory space at the Mount Sinai-affiliated James J. Peters Veterans Affairs Medical Center (VAMC), where he is Director of Endocrinology and Metabolism. Under his leadership, the VAMC Endocrine Clinic is the first of its kind in New York City to offer instant thyroid sonography, aspiration biopsy, and cytological interpretation in one session for the rapid diagnosis of thyroid cancer.

Mone Zaidi, MD, PhD, Professor of Medicine, specializes in osteoporosis research. In 2006, Dr. Zaidi’s investigations into the causes of postmenopausal bone loss in women were published in the prestigious journal, *Cell*. Where it has long been assumed that decreased estrogen levels are primarily responsible for postmenopausal bone loss, Dr. Zaidi’s groundbreaking work demonstrated that follicle stimulating hormone (FSH) may in fact play a more significant role in postmenopausal bone loss.

The clinical significance of this finding, says Dr. Zaidi, is initiation of a search for ways in which to reduce FSH levels in postmenopausal women and thereby conserve bone mass—without affecting estrogen levels in any way.

**Education and Training**

The Division’s National Institutes of Health Training Grant in Molecular and Cellular Endocrinology was recently funded for years 16 through 20 for six positions. Receipt of this competitive award from the NIH distinguishes the Division as a leader in training doctoral students and postdoctoral fellows in this field.

The curriculum for the Clinical fellowship in Endocrinology, Diabetes, and Metabolism has been revised to reflect the Division’s strong commitment to ground fellows in both clinical and academic medicine under the leadership of Dr. Yanagisawa, Program Director.

Dr. Levine has assumed the role of Research Training Director under a new and more formalized research training program. Fellows who are pursuing clinical research now attend a Clinical Investigator Training Course to facilitate their development as clinical scientists. Additionally, fellows’ research projects are now reviewed by faculty as well as by an outside expert on the selected focus.

Dr. Davies has re-vamped the fellowship training at the Bronx VAMC so that it now offers multiple endocrine specialty clinics along with expanded research opportunities in thyroid disease.

In 2007, four positions were available for Clinical Fellowship in Endocrinology, Diabetes, and Metabolism. The Division received over 100 applications for these four positions, which were filled by fellows who completed their medical residencies at some of the nation’s top programs, including Brown University, Beth Israel Deaconess, and the Mount Sinai School of Medicine.

**DRS. ROSALYN YALOW and SOLOMON BERSON**

revolutionized endocrinology with the development of the radioimmunoassay in 1957. Dr. Yalow accepted the Nobel Prize for their work in 1977, five years after Dr. Berson’s death.
Since 2003, under the leadership of Division of Gastroenterology Chief Lloyd Mayer, MD, Dorothy and David Merksamer Professor of Medicine, coordination has been the major driving force in the Division. Research and clinical care initiatives are paired to facilitate translational research and provide comprehensive patient care in inflammatory bowel diseases (IBD), gastrointestinal cancers, women’s gastrointestinal health, irritable bowel syndrome, therapeutic endoscopy, and related areas.

Newly created centers give patients one-stop access to numerous physician specialists, nurse practitioners, and nutrition and psychological counseling. Fellows, residents, and students have the benefit of mentors and teachers with diverse experience working together to provide unique perspectives and learning opportunities.

This coordinated approach is clearly yielding results. Research funding to the Division from the NIH nearly doubled between 2002 and 2006. In addition, the Division’s Faculty Practice receipts more than doubled between 2003 and 2006.

IBD: Collaborating Across the Hall and Across the Country
Since the publication of the landmark study on regional enteritis—Crohn’s disease—by Mount Sinai physician-researchers Burrill Crohn, MD, Leon Ginzburg, MD, and Gordon Oppenheimer, MD, the Hospital has been the leader in the care of inflammatory bowel disease (IBD). Today, Mount Sinai physicians care for the largest population of patients with IBD in the country.

In 2005 Maria Abreu, MD, Associate Professor of Medicine, joined the faculty and assumed the leadership of the IBD Center at Mount Sinai. Dr. Abreu is the principal investigator of the IBD Center Clinical Phenotype Database and Tissue Repository, a collaborative effort with all physicians at Mount Sinai who treat IBD to collect clinical, genetic, and serologic data on over two thousand patients in order to identify genes, immunologic pathways, and biomarkers involved in these complex genetic disorders.

In a paper published in *Gastroenterology* in 2006, Dr. Abreu and colleagues described an important link between structures known as toll-like receptors (TLRs; specifically TLR4), and the inflammation-associated enzyme, cyclooxygenase 2 (COX-2). They found that while TLR4 protects against cell death in the injured intestine, long-term TLR4 signaling may lower the threshold for colitis-associated cancer.

The Crohn’s and Colitis Foundation of America (CCFA) chose Mount Sinai as a center of excellence for inflammatory bowel disease education. Select gastroenterology fellows from around the country spend a month at Mount Sinai learning about inflammatory bowel disease and the Division hosts practicing gastroenterologists for three-day learning programs.

Stopping Cancer in its Tracks
Colorectal cancer is the second most common cause of cancer-related mortality in the United States. It is well recognized that screenings and removal of polyps can reduce the incidence of colorectal cancer.

The Division of Gastroenterology established an open-access service for screening colonoscopies
WHAT’S IN A NAME?
There is perhaps no name more associated with Mount Sinai’s leadership in gastroenterology than that of Burrill B. Crohn. But, the controversy that surrounded his most famous discovery could well have led to another name rising to prominence.

In October 1932, Crohn and Mount Sinai colleagues Leon Ginzburg and Gordon Oppenheimer published, Regional Ileitis in the Journal of the American Medical Association. This paper defined for the first time the disease that would later be known as Crohn’s disease.

In the spring of that year, Crohn gave an oral presentation on the same subject at the annual meeting of the American Medical Association. He was listed on the program as the sole author despite the undisputed contribution of his colleagues. Also in the spring of 1932, Ginzburg and Oppenheimer presented their own data before the American Gastroenterological Association without listing Crohn as an author.

Mount Sinai’s Chief of Surgery, A.A. Berg convened a formal committee of inquiry that ultimately led to listing all three authors in alphabetical order, thus putting Crohn’s name first and contributing to it being the one forever associated with the work.
through which patients are referred by their primary care physicians. Assistance with scheduling, preparation, and transportation is provided to underinsured patients. Through funding provided by the American Cancer Society and the Department of Medicine Advisory Board, the Division has also been able to provide free colonoscopies for uninsured New Yorkers. The program has reduced the waiting time for screening colonoscopy from over three months to less than one month.

Jennifer Christie, MD, Assistant Professor of Medicine and Director of the Women’s Health and Motility Center at Mount Sinai, and colleagues in the Cancer Community Outreach Program within the Department of Oncological Sciences investigated why minority women are less likely to undergo this potentially life-saving screening. Their findings, published in the *Journal of the National Medical Association*\(^2\), highlighted the importance of having doctors explain the procedure to their patients inasmuch as most patients will follow their physicians’ recommendations.

For some patients, a colonoscopy is not possible because of other medical conditions or due to fear and anxiety about the procedure. Steven Itzkowitz, MD, Dr. Burrill B. Crohn Professor of Medicine and Director of the GI Cancer Center at Mount Sinai, may have found a solution. Working with EXACT Sciences Corporation, he is developing a stool-based screening test for colon cancer. In a large multi-center study published in *Clinical Gastroenterology and Hepatology*\(^3\), the test demonstrated 88 percent sensitivity for colorectal cancer with equal detection across all stages of cancer, regardless of the cancer’s location in the colon.

Dr. Itzkowitz is also hoping to use screening tests to improve outcomes for patients with gastric cancer—the second leading cause of mortality from cancer. He received the AGA/Funderburg Research Scholar Award in Gastric Biology, the only grant awarded by the American Gastroenterological Association to study gastric cancers.

In 2006 Dr. Itzkowitz published a study in *Gastroenterology*\(^4\) that offered the first proof that a group of genes known as the trefoil family is directly involved in the pathogenesis of gastric cancer. This work suggests that screening for genetic mutation may some day allow assessment of the metastatic potential of gastric cancers.

The steps required to assess a patient found to be at high risk for cancer are not always clear. Some physicians believe patients with ulcerative colitis and Crohn’s disease with pre-cancer—termed dysplasia—should have their colons removed, while others advocate careful monitoring. Thomas Ullman, MD, Assistant Professor of Medicine, is conducting a study funded by the NIH to examine the optimal frequency of colonoscopies in this patient population.

All endoscopic procedures were enhanced in 2006 when The Mount Sinai Hospital opened a new, state-of-the-art endoscopy suite that incorporates the latest technology in a patient-friendly environment. Divyesh Sejpal, MD, Assistant Professor was appointed Chief of Therapeutic Endoscopy in 2006.

**Immunity and the GI Tract**

For the past several years Dr. Mayer has served as Chief of both the Division of Gastroenterology and the Division of Clinical Immunology. This unusual dual role has been possible because of his tandem interests in immunology and gastroenterology. He is principle investigator for a clinical trials group funded by an NIH program project grant that is investigating the innate and adaptive immune interactions in the human digestive system.

In 2005, he published a groundbreaking study\(^5\) that is changing the way investigators think about the intestinal immune system. He and his colleagues developed a novel approach that depended on careful microsurgery of mouse intestine. Their findings contradicted previous studies that had identified a specific group of mucosal lymphocytes.

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\(^4\) *Gastroenterology.* 2006;130:1696-706.
nodes and specialized intestinal epithelial cells as essential to the ability of the intestines to remain immunologically tolerant to the high load of food and bacterial antigens that sweep across their surface. By pinpointing other cells as having a role in this process, the study opened new avenues of investigation.

Training the Experts

**THE NATIONAL INSTITUTES OF HEALTH HAS BEEN FUNDING FELLOWSHIP TRAINING IN GASTROENTEROLOGY AT MOUNT SINAI SINCE 1958.**

Under the joint leadership of Dr. Itzkowitz, MD, and Scott Friedman, MD, Chief of the Division of Liver Diseases, the Program receives over 330 applications a year for the four positions.

Many of the fellows accepted into the program already possess extensive research experience, but they come to Mount Sinai to avail themselves of the training needed to become leaders in the field.

Some of the most prestigious awards in the field are earned by Division fellows, including the American Gastroenterology Association/Foundation for Digestive Health and Nutrition Research Scholar Award and the Ruth L. Kirschstein National Research Service Award from NIH.

Gastroenterologists from all over the world come to Mount Sinai to learn about the latest advances in care for gastrointestinal disorders. For example, the Mount Sinai Inflammatory Bowel Disease Consultant’s Course, held in 2005 and 2006 and co-directed by Asher Kornbluth, MD, Associate Clinical Professor, and Dr. Abreu, drew over 200 specialists to discuss critical issues relating to the treatment of IBD patients in their practices.
Today, Mount Sinai physicians care for the largest population of patients with IBD in the country.
DR. THOMAS MCGINN was recently named Secretary/Treasurer of the National Association of Chiefs in General Internal Medicine and selected to participate on a national task force on the future of academic hospital medicine.
Under the leadership of Division Chief, Thomas McGinn, MD, Clifford L. Spingran, MD, Professor in Primary Care Medicine, the Division has expanded from one primarily focused on clinical care, to one that fully embraces the tripartite mission of academic medicine of patient care, research and education.

But, Mount Sinai’s location on the border of East Harlem gives an added dimension to all the work within the Division. “In the communities surrounding Mount Sinai many residents live at or below the poverty line and suffer from a variety of chronic diseases,” notes Dr. McGinn. “Therefore, community service has been a high priority for the Division, permeating all aspects of our mission.”

**Strength in Leadership**
The outstanding capabilities of the faculty within the Division are attested to by the fact that many members of the Division serve in leadership roles at Mount Sinai.

In 2004 David Muller, MD, was appointed Dean of Medical Education and the Marietta and Charles C. Morchand Chair in Medical Education. Dr. Muller is directing the creation of an innovative new curriculum focused on preparing medical students to deal with the challenges of medicine in the 21st century.

Lisa Bensinger, MD, Assistant Professor of Medicine, is director of the Mount Sinai Institute for Medical Education. The Institute supports and enhances all educational programs and teaching faculty at the Mount Sinai School of Medicine.

Navneet Kathuria, MD, Professor of Medicine, was recruited to the Division in 2005 as Vice Chair for Quality Assurance for the Department of Medicine. His work has already had a measurable impact on quality of care throughout the Department.

Ethan Halm, MD, Associate Professor of Medicine, was named Director of Epidemiology and Outcomes Research for the Department of Medicine in 2006. He is facilitating the growth of patient-oriented clinical research infrastructure and activities throughout the Department.

Stephen Sigworth, MD, Assistant Professor of Medicine and David Thomas, MD, Associate Professor of Medicine, were both tapped by Paul Klotman, MD, Chairman of Medicine, in early 2007 to lead major reforms in out-patient services. Dr. Sigworth is Associate Director of the Department’s Faculty Practice Associates (FPA). He is spearheading efforts to unite what were historically independent specialty practices into one practice that provides uniformly, exceptional patient care. As Director of Ambulatory Services and Ambulatory Training for the Department of Medicine, Dr. Thomas is focusing on the Hospital-based clinics to improve the experience for both patients and fellows.

**Growing Research Focus**
Grant funding to the Division nearly doubled in just one year from 2005 to 2006.

Dr. Halm is co-director of the Center for the Study of Health Beliefs and Behaviors, which was established in 2004. The objective of the Center is to determine how patients’ beliefs about disease affect medication and lifestyle compliance, and how these, in turn, affect clinical outcome and quality of life.

In 2006 the Division along with the Department of Medical Education, was awarded a grant from the Attorneys General Prescriber Education Program to develop a curriculum to “inoculate” health professionals with the knowledge and skills to critically evaluate drug information, resist
industry marketing techniques, and appropriately manage patients’ drug-specific requests.

On a related topic, a 2006 national study\(^1\) conducted at Mount Sinai found that many Medicare beneficiaries with hypertension were purchasing expensive brand-name drugs when equally efficacious and inexpensive generic drugs are available. Alex Federman, MD, MPH, Assistant Professor of Medicine, lead author, states, “Physicians must take an active role to address this problem by prescribing equivalent, lower cost generic versions when available.” Dr. Federman received the 2006 Paul B. Beeson Career Development Awards in Aging Research from the National Institute on Aging.

In a recent study, Carlton Moore, MD, Assistant Professor of Medicine, evaluated the transition from inpatient to outpatient care. The results, which he presented at the 2007 national meeting of the Society of General Internal Medicine, highlighted the importance of communication between the hospital and outpatient physicians in preventing medical errors.

In a study to understand why women are more likely than men to survive lung cancer, Juan Wisnivesky, MD, Assistant Professor of Medicine, found that even after controlling for type of treatment, potential sex differences in smoking rates, and many other confounders, women still survived longer than men. These findings, which were published in 2007, suggest fundamental differences in tumor biology between women and men\(^2\).

**Caring for the Individual and the Community**

The Internal Medicine Associates (IMA) faculty practice is the main ambulatory services practice of the Division. With accessible preventive care and treatment from physicians and staff who understand the social and cultural needs of the community, the IMA is helping to improve the

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\(^2\)J Clin Oncol. 2007 May 1;25(13):1705-12.
health of all patients, including many East Harlem residents, and reducing nonemergent use of the Hospital’s Emergency Room.

In addition to the IMA, primary care services have been expanded within Mount Sinai’s Faculty Practice Associates. Vinisha Patel, MD, and Jennifer Kent, MD, Assistant Professors of Medicine, recruited in 2003 and 2004 respectively, and Dr. Sigworth, have been building this practice. The growing practice is facilitating coordinated care between internists and specialists to meet all of a patient’s medical needs.

Doctors and staff also go out to the community to conduct health screenings and give talks on a variety of topics, encouraging greater utilization of preventative strategies and identifying conditions before patients reach advance stages of illness.

Bringing Care Home
The Mount Sinai Visiting Doctors Program is the largest home visitation program of its kind in the country with an active census of 420 patients. Theresa Soriano, MD, Assistant Professor of Medicine, who joined the faculty in 2006, is director of the program and is leading a national effort to define quality-of-care standards in home-based primary care.

All second-year medical residents participate in the Mount Sinai Visiting Doctors Program, gaining a better understanding of the many factors contributing to a patient’s condition. During this rotation residents meet weekly in small groups, to discuss literature, art, and other fields, and are required to complete a creative project.
Healthy foods, often hard to find in East Harlem, can be purchased every Friday during the summer and early fall at the green market across the street from Mount Sinai.

Farmers from Upstate New York sell fresh produce at reasonable prices and they accept food stamps for all purchases.
Green Market
Studies—many led by Mount Sinai faculty—have demonstrated the difficulty of finding fresh, reasonably priced produce in East Harlem. This is one of the factors contributing to high obesity rates in the community. In 2006 the Division of General Internal Medicine—led by Drs. McGinn and Thomas—set about to rectify this problem.

Working with Mount Sinai’s Community Relations Office, the Division began a weekly Green Market. Every Friday during the summer and early fall farmers from upstate New York sell fresh produce at reasonable prices. All Green Market vendors accept food stamps.

Hospitalists Program
The term “hospitalist” is a relatively new term, coined in 1996, that describes a physician whose primary professional focus is the care of hospitalized patients. Five years ago the Division took over management of the Hospitalists Program at Mount Sinai. Since then the Program has grown tremendously.

Recognizing the vital role of a hospitalist’s expertise in providing the highest quality inpatient care, leadership of The Mount Sinai Hospital expanded night and weekend hospitalist coverage in 2005.

This increased support has facilitated significant expansion, including increasing patient volume on the hospitalist service by 18 percent. The acuity of cases has increased as well while length of stay has decreased.

According to the program’s director, Andrew Dunn, MD, Associate Professor of Medicine, “The added coverage has also allowed the Hospitalist Program to expand its other missions, particularly in research and education.” The Division is now developing a fellowship program for hospitalists.

Training
The Internal Medicine house staff spend approximately 35 percent of training time in the Division of General Internal Medicine. Each resident has a cadre of patients that he or she cares for throughout their residency, providing continuity of care for the patient and an evolving learning experience for the resident. An expansive curriculum is woven into the day-to-day management of over 55,000 annual patient visits.

In addition to the Division’s highly regarded fellowship in General Internal Medicine, Mount Sinai has one of the few integrated General Internal Medicine/General Pediatrics fellowships in the country. Dr. McGinn, in collaboration with colleagues from the Division of General Pediatrics, received renewal of a competitive primary care research fellowship grant from the Federal Health Resources and Services Administration to support the training of two fellows per year over a three-year period. The Division also received its sixth consecutive year of Empire Clinical Research Investigator Program fellowship training funding from the New York State Department of Health.

In 2005 Division fellow Ian Kronish, MD, received a Lipkin Award for best trainee abstract at the 2005 meeting of the National Society for General Internal Medicine (SGIM), while faculty member Jennifer Lin, MD, Assistant Professor of Medicine received a best-research-abstract award from the Mid-Atlantic SGIM.
“We are recruiting—and retaining—superb researchers & clinicians with fine records of accomplishment in their areas of interest and expertise.

Working at the outer edges of medicine in many cases, the Division is mounting a full-frontal attack on hematologic and neoplastic diseases.”

Dr. George Atweh
George Atweh, MD, is a renowned hematologist who served at Mount Sinai as Chief of the former Division of Hematology before it was united with the former Division of Neoplastic Diseases. In 2006 Dr. Atweh was once again appointed Chief—this time, of the combined Division of Hematology and Medical Oncology.

Dr. Atweh is working closely with Paul Klotman, MD, Chairman of Medicine, and Dennis Charney, MD, Dean of Mount Sinai School of Medicine, to recruit new faculty to enhance Mount Sinai’s cancer treatment programs. These efforts are positioning Mount Sinai to compete for a Comprehensive Cancer Center designation from the National Cancer Institute.

Saving Lives through Research & Innovation
More than 85 faculty members comprise the Division of Hematology and Medical Oncology, with more being actively recruited nationwide and abroad.

About his vision for the future, Dr. Atweh comments, “We are recruiting—and retaining—superb researchers and clinicians with fine records of accomplishment in their areas of interest. Working at the outer edges of medicine in many cases, the Division is mounting a full-frontal attack on hematologic and neoplastic diseases.”

Bleeding Disorders
Among the Division’s highly regarded programs is the multidisciplinary, federally-funded Mount Sinai Regional Comprehensive Hemophilia Treatment Center (HTC). The Mount Sinai HTC is recognized as an International Hemophilia Training Center, one of only a handful in the United States.

Christopher Walsh, MD, PhD, who is internationally renowned as a leader in the study of gene therapy for blood diseases, was recruited to run the HTC in 2003. Dr. Walsh’s earlier work in Fanconi anemia included the first clinical trial in which retroviral vectors were used for gene therapy of patients with Fanconi anemia group C. Dr. Walsh is also actively developing gene therapies for hemophilia types A and B.

Current research in the HTC includes studies into the epidemiology of inherited bleeding disorders, evaluation of new therapeutic interventions for these disorders, and studies aimed at understanding, treating, and preventing the complications of bleeding disorders.

Bone Marrow Transplantation
The technique of bone marrow transplantation—which normally has a high mortality rate—received significant refinement through the innovative work of Luis Isola, MD, Associate Professor of Medicine. Dr. Isola refined a new technique of bone marrow transplantation known as “mini-bone marrow transplantation.” This new approach has proved safe and effective for older patients and for those who have relapsed or failed to respond to previous treatments, including stem cell transplantation.

While cautioning that the procedure still has risks, Dr. Isola noted that the new regimen is well tolerated by very ill patients, and often results in a successful “take” of the transplant.

Sickle Cell Disease
The Mount Sinai Medical Center is located in a diverse section of New York City that includes a large African American population. As such, the Division’s strong focus on sickle cell disease is vital to meeting Mount Sinai’s self-imposed mandate of providing top-quality care to our local community.

The Sickle Cell Disease and Hemoglobinopathies Program has been funded by NIH for many years as part of the Manhattan Comprehensive Sickle Cell Center. This program brings together—within the same institution—clinical and basic research projects along with clinical and psychosocial services to meet the needs of patients.
An NIH-funded study, with Dr. Atweh as principal investigator, was initiated in 2005. The purpose of this study is to improve on the benefits derived from treatment with hydroxyurea in patients with sickle cell disease who achieve only a partial response by adding arginine butyrate to their treatment regimen.

Paul Frenette, MD, Associate Professor of Medicine, is conducting studies of mouse models of sickle cell disease which have suggested that intravenous gamma globulins may abort vaso-occlusive crises in sickle cell disease. Based on these laboratory studies, Patricia Shi, MD, Professor of Medicine, and Dr. Frenette received approval from the FDA to test this innovative treatment approach in patients with sickle cell disease.

Leading 21st Century Research

The Genetic Approach to Treatment

Members of the Division of Hematology and Medical Oncology are developing novel and highly effective treatments for hematological and neoplastic diseases. Current research is focused on effective ways to treat patients suffering from genetic and acquired hematological diseases and malignancies including the thalassemias, bleeding disorders, leukemia, and malignant tumors.

The Division began a partnership in 2005 with the Division of Liver Diseases and Mount Sinai’s Recanati/Miller Transplantation Institute to identify new molecular pathways of hepatocellular carcinoma with the goal of developing more effective treatments for the disease.

Max W. Sung, MD, Associate Professor of Medicine, has been conducting clinical trials of immunotherapy in patients with advanced colorectal and breast cancers using gene transfer therapy that was developed by colleagues in the Department of Gene and Cell Medicine at Mount Sinai.

Dr. Sung is also involved in clinical trials of “suicide gene” therapy and differentiation therapies for colorectal cancer, also developed at Mount Sinai. A promising avenue of investigation is Dr. Sung’s work on anti-angiogenesis therapy for hepatocellular carcinoma.

Tony E. Godfrey, PhD, Associate Professor of Medicine, was recruited to the Division in 2004. Dr. Godfrey is recognized as a premier researcher in the detection of micrometastasis from malignant diseases. The thrust of his work is to identify new oncogenes involved in breast, bladder, and colorectal carcinomas. Currently, he is working on identifying molecular markers for detection of lymph node metastasis. This work was funded
Two vital contributions to the management of blood transfusions came from Mount Sinai in 1915. Lester Unger introduced a new stopcock that allowed the operator to withdraw blood from the donor, mix it with citrate solution and inject it into the patient in one smooth operation. Richard Lewisohn made indirect transfusion possible by describing the minimum amount of citrate required to prevent blood from clotting.
by a Sponsored Research Grant from Cepheid of Sunnyvale, California. He is also currently working under a research grant received from the NIH to study methods of molecular detection of occult disease in non-small cell lung cancer.

In 2006 Vladimir Bogdanov, PhD, Assistant Professor of Medicine, was awarded the prize for the Best Article by Young Investigators less than 35 years of age by the Journal of Thrombosis and Haemostasis. This is the official journal of the International Society for Thrombosis and Haemostasis1. Dr. Bogdanov studies biology of tissue factor, a molecule essential for blood coagulation.

Stem Cell Research
The Stem Cell Transplant Program is in the vanguard of treatment for hematological malignancies and cancers. After more than a decade of successfully treating a variety of diseases, the Program has emerged from being perceived as experimental to having become a model of standard treatment for specific diseases. The Program, says Dr. Atweh, is committed to finding new ways of improving the length and quality of life for patients.

In 2005 the Mount Sinai School of Medicine received a major gift from New York financier Leon D. Black to establish the Black Family Stem Cell Institute. Several members of the Division are also members of the Institute, which integrates embryonic stem cell research, developmental biology, and adult stem cell biology.

Margaret H. Baron, MD, PhD, Irene and Dr. Arthur M. Fishberg Professor of Medicine and a member of the Institute, is the editor of the textbook, Developmental Hematopoiesis: Methods & Protocol (2004), which has been described by reviewers as “a valuable addition to the field of developmental hematopoiesis.”

Among Dr. Baron’s promising recent work is the study of the function of the “hedgehog” family of signaling protein molecules during embryonic development2. Her work suggests that these molecules are essential to formation of blood and endothelial cells, and may have implications in uncovering other regulatory mechanisms for hematopoiesis and vascular development. Dr. Baron’s methodology for using hedgehog proteins to modulate hematopoiesis and vascular growth received a US patent in 2004.

Training Initiatives
To maintain such a high level of excellence in research and clinical care, the Division’s combined Fellowship Training Program in Hematology and Medical Oncology has been completely redesigned during the past five years to allow fellows to take advantage of the expertise of the many clinicians and researchers at Mount Sinai.

Reflecting the Medical Center’s initiative to produce superb physicians and scientists, the Division strives to develop new generations of outstanding academic hematologists and oncologists who will assume positions of responsibility in the future, both at Mount Sinai and at other major research and treatment centers around the world.

Each year, following a long and cherished tradition, the most promising graduating fellows—Mount Sinai’s “best and brightest”—are recruited to faculty positions.

Most recently, the Division of Hematology and Medical Oncology welcomed fellowship graduates Drs. Gabrielle Goldberg, Elaine Chiang, and Sebastian Mayer to its faculty.

DR. LUIS ISOLA pioneered mini-bone marrow transplantation. This new approach offers the procedure to those formerly thought to be too old or too ill to undergo transplantation.
Mount Sinai was one of only two AIDS programs highlighted in *New York* magazine’s “Best Hospitals” issue in 2006.
Mount Sinai’s Division of Infectious Diseases is widely recognized as one of the leading centers for research and clinical care of HIV infection. In the 2006 *US News & World Report* “Best Graduate Schools Rankings,” Mount Sinai was ranked 14th in the nation for the quality of its AIDS programs.

Mount Sinai was one of only two AIDS programs highlighted in *New York* magazine’s “Best Hospitals” issue in 2006. In 2006 Division Chief, Mary Klotman, MD, Irene and Arthur M. Fishberg, MD, Professor of Medicine, was elected to membership in the Association of American Physicians.

The past five years have witnessed a period of tremendous growth for the Division, with the addition of 16 faculty members between 2001 and 2006.

**HIV/AIDS Care**

Because Mount Sinai is located in a highly populated urban center where the rate of HIV/AIDS infection is high, the Medical Center is uniquely positioned to address research and treatment of this disease. Michael Mullen, MD, Associate Professor, an acknowledged expert on infectious disease and HIV medicine, joined the faculty in 2005 as Clinical Director.

Under his leadership, the Division reported an astounding 145 percent per annum increase in patient visits to its faculty practice in 2006. The language and clinical skills of recent recruits Gabriela Rodriguez, MD, Assistant Professor of Medicine and Daniel Caplivski, MD, Assistant Professor of Medicine, have helped fuel this growth.

Division members staff the Jack Martin Fund Clinic, one of only a handful of New York State Designated AIDS Centers. The Jack Martin Fund Clinic provides primary outpatient and inpatient treatment for adults and children with infectious diseases, and specialty referrals as needed. To meet the expanding needs of patients infected with both HIV and hepatitis, Dawn Fishbein, MD, Assistant Professor of Medicine, recently started a “clinic within the clinic” specifically for this patient population.

As part of its overall commitment to the local community, the Division also sponsors numerous HIV/AIDS community education and prevention initiatives. For example, Richard Mackay, MD, Assistant Professor of Medicine, and Infectious Disease fellow Charu Jain, MD, trained a group of medical students to perform rapid HIV testing for the annual community health fair held in 2006. Because of the student’s involvement, 15 percent of all fair attendees were tested.

Reaching beyond Mount Sinai’s immediate community Debbie Indyk, PhD, Associate Professor of Medicine, is the principal investigator on an NIH grant that instructs Argentinean health care providers and researchers in HIV prevention, especially during pregnancy and delivery.

An HIV/AIDS Health Care Twinning Partnership was established between Mount Sinai-affiliate Elmhurst Hospital Center and the Orenburg AIDS Center in Orenburg, Russia in 2004. Funding for this enterprise came from the American International Health Alliance and the US Agency for International Development.

In recognition of their contributions, six physicians from the Partnership received the 2006 Presidential Voluntary Service Awards from the US Agency for International Development.

Under the leadership of coordinator, Joseph Masci, MD, Professor of Medicine, the Partnership’s efforts have resulted in an increased number of patients placed in treatment, improvements in adherence to medication regimens, the establishment of infection-control best practices, improved surveillance and management of patients exposed to or co-infected with TB, and an expanded role for nurses and social workers to address the many psychosocial factors associated with HIV in Russia.
HIV/AIDS Research
Division faculty members have received significant funding for and had numerous publications related to the development of topical microbicides to prevent the spread of HIV.

In 2005 Dr. Mary Klotman, Marla Keller, MD, Assistant Professor of Medicine, and associates conducted a clinical pilot study demonstrating that when a microbicide was vaginally applied, cervical vaginal samples from women using the microbicide showed significant anti-HIV and anti-herpes simplex (HSV) activity compared to women using a placebo. The promising results of this trial were published in the *Journal of Infectious Diseases*¹ and have sparked additional work in this area.

As part of the Division’s commitment to microbicide development, Dr. Klotman and infectious disease fellow, Natalia Teleshova, MD, in collaboration with members of the Departments of Obstetrics and Gynecology and Pathology, established the cervical vaginal explant model to study the determinants of HIV transmission in the setting of sexually transmitted diseases.

Theresa Chang, PhD, Assistant Professor of Medicine, has been studying the role of defensins—small proteins—in the prevention and treatment of HIV infection. In a study published in the *Journal of Clinical Investigation* in 2005,² Dr. Chang and colleagues were the first to identify the mechanism by which alpha-defensin-1 inhibits HIV infection. Research by Drs. Klotman and Chang on defensins resulted in a comprehensive review of the literature in the *Nature Review of Immunology* in 2006.³

Also in 2006 Viviana Simon, MD, PhD, Assistant Professor of Medicine, was recruited to build a research program in HIV host resistance and its implications for antiretroviral resistance and the development of new therapies.

Faculty from the Division of Infectious Diseases have worked closely with colleagues in the Division of Liver Diseases to make Mount Sinai a major center for research and treatment related to HIV/hepatitis C co-infection. They have found very early evidence of hepatic fibrosis in HIV-infected patients newly infected with hepatitis C.

In 2006 Dr. Fishbein published an intriguing paper in the *Journal of Acquired Immune Deficiency Syndrome*⁴ that investigated, prospectively, the predictors of HCV RNA levels in drug users.

Dr. Mary Klotman and Daniel Fierer, MD, Assistant Professor of Medicine, are both working with Paul Klotman, MD, Chairman of Medicine, on a program project grant from the National Institute of Diabetes and Digestive and Kidney Diseases to study the pathogenesis and genetics of HIV-Associated Nephropathy (HIVAN).

Travel Health
Recruited to the Division in 2005, Dr. Caplivski is a former Mount Sinai fellow. During his fellowship, he participated in the Gorges Course in Tropical Medicine to hone his skills in global health. In 2006 he was appointed medical director of Mount Sinai School of Medicine’s Travel Health Program, which is a designated Yellow Fever Center and one of only 27 worldwide sites in the GeoSentinel Network for the surveillance of emerging diseases.

Antibiotic Management
In 2005 the Division launched the Antibiotic Assistance Program (AAP), under the direction of Nathalie Casau, MD, Assistant Professor of Medicine, with goals of reducing pharmacy antimicrobial expenditures and other hospital costs associated with antimicrobial use, improving patient outcomes, and preventing the emergence of drug-resistant pathogens.

After only its first year of operation, the AAP reported 5,963 initial requests for restricted antimicrobial agents. By promoting compliance with antimicrobial-related indications issued by regulatory and payer agencies, Dr. Casau and her team were able to achieve an estimated

Under Dr. Mullen’s leadership the infectious diseases faculty practice reported an astounding 145 percent per annum increase in patient visits in 2006.
National boundaries offer no protection against new and recurring pathogens that threaten human life. West Nile virus, SARS, hepatitis C, HIV, BSE (bovine spongiform encephalopathy, or “mad cow disease”)—each requires intensive, coordinated research and a sophisticated plan of attack to prevent or manage outbreaks. In addition, the threat of bioterrorism adds to the list of potential dangerous epidemics.

The Emerging Pathogens Institute of the Mount Sinai School of Medicine, co-directed by Division Chief Mary Klotman, MD, and Adolfo Garcia Sastre, PhD, Professor of Microbiology, was created to undertake basic and clinical research to develop novel therapies and strategies for prevention and treatment of emerging pathogens. The Institute facilitates creation of a framework for scientific exchange between diverse clinical and research disciplines—microbiologists, immunologists, cell biologists, and infectious disease specialists—to foster collaboration and to allow rapid mobilization of personnel and resources.

In 2006 Mount Sinai completed construction of a Biosafety Laboratory Level 3+ to provide a safe environment in which to study emerging pathogens. Simon Daefler, MD, PhD, Assistant Professor of Medicine, was recruited to run the facility, where he is continuing his own research on the molecular mechanisms of host-pathogen interactions during infections with intracellular bacteria.
antibiotic-acquisition cost-savings of $415,203. A major bonus to the program, is an increase in the appropriate use of antibiotics in the hospital setting, thereby reducing the risk of hospital-acquired resistant infections.

**Infection Control**

Soon after David P. Calfee, MD, Assistant Professor of Medicine, was recruited to Mount Sinai in 2004 as Director of Infection Control, he initiated several protocols to reduce hospital-based infections at Mount Sinai.

Dr. Calfee lectures and participates in grand rounds concerning the ways in which hospital staff can minimize their exposure to infectious pathogens. His hand washing protocol increased hospital-wide compliance with routine hand washing. Together with the Antibiotic Assistance Program, this initiative has resulted in a dramatic decrease in microbial infection at Mount Sinai.

His expertise in infection control was recently recognized by his appointment to a Society for Healthcare Epidemiology of America workgroup, which was formed to create evidence-based guidelines that address detection, prevention and reporting of common hospital-acquired infections.

**Transplantation Infectious Diseases Program**

Mount Sinai’s Recanati/Miller Transplantation Institute (RMTI) has been a leading center for organ transplantation for four decades. The same medications that help prevent organ rejection also weaken the immune system, paving the way for new infections, many from antimicrobial-resistant pathogens. Infectious disease specialists therefore work closely with the RMTI to prevent and treat such infections.

During his fellowship in infectious disease at Mount Sinai, Shirish Huprikar, MD, developed specific expertise in this area. Upon graduation in 2004, he joined the Division and is now Director of the Transplantation Infectious Diseases Program.

**Education and Training**

The Infectious Diseases Fellowship program recruits to fill three positions annually. For the class entering in 2007, 115 applications were received and, according to Dr. Mary Klotman, “We had one of our best matches in history.”

Dr. Klotman is principal investigator on a training grant from the National Institute of Allergy and Infectious Diseases that supports extended training periods for physicians interested in pursuing a research career in viral pathogenesis. The candidates enter into their research training track during their second year of fellowship and become eligible for funding through the training grant for two subsequent years.

During the 2006/07 academic year, the Division piloted a longitudinal HBV/HCV curriculum for second-year clinical fellows. This is one of the first curricula of its kind to be created within an infectious diseases training program.

In recent years, fellows have received prestigious awards that include a travel grant from the Infectious Diseases Society of America and a Bristol-Myers Squibb Virology Fellow Research Award. Many graduates have gone on to pursue academic careers, including several who have joined the Division as faculty.
The Liver Disease Fellowship at Mount Sinai is the largest program of its kind in the United States.
Of this growth, and of planned future expansion, Division Chief, Scott Friedman, MD, Irene and Dr. Arthur M. Fishberg Professor of Medicine (Liver Diseases), emphasizes that the Division’s goal is to become the premier division of liver diseases in the United States within five years. “Our success will be defined by excellence in both clinical and translational research,” he says.

Building upon Greatness
The Division of Liver Diseases is distinguished by its leadership in hepatic fibrosis, hepatocellular carcinoma, hepatitis C virus infection, primary biliary cirrhosis, and liver immunology.

Over the past decade, there has been an upswing in chronic liver disease, a growing incidence of liver cancer, and an ever-increasing shortage of organs available for liver transplantation. Basic, translational, and clinical research projects, as well as patient care initiatives within the Division, are geared toward finding solutions for each of these concerns.

Chronic Liver Disease
A distinct target of Division research is the hepatitis C virus (HCV), a leading cause of liver disease. Research by Andrea Branch, PhD, Associate Professor of Medicine, and her associates within the Division’s Hepatitis C Program, has brought increased NIH funding to investigate the pathogenesis, as well as novel modes of diagnosis, of HCV infection.

By uncovering the pathways through which liver cells process the hepatitis C virus, Dr. Branch’s work is expected to help assess how seriously a patient’s liver will be affected by disease progress, and to adjust treatment accordingly.

Of the nearly one million people in the US estimated to have human immunodeficiency virus (HIV), approximately 300,000 of them are believed to be co-infected with hepatitis C. The investigational work on co-infection by Douglas Dieterich, MD, Professor of Medicine, who joined the Division in 2003, has positioned Mount Sinai as an international leader in research and clinical care related to co-infection with HCV and HIV.

Dr. Dieterich has led numerous clinical trials at Mount Sinai, including a landmark study published in the *New England Journal of Medicine* in 2004, which found the highest response rate ever achieved for a treatment designed for patients co-infected with hepatitis C and HIV.

Paul Martin, MD, Professor of Medicine, joined the Division in 2004 as Associate Chief. Dr. Martin is an international expert on the interactions between HCV and kidney disease, as well as on management of end stage liver disease.

Dr. Friedman’s own investigations into liver fibrosis have significantly contributed to the recognition of the importance of the assessment of liver scarring (fibrosis) in the treatment of patients infected with HCV. Ongoing basic research on fibrosis spearheaded by Dr. Friedman and others in the Division is leading the way to discovery of highly effective medications that can slow—or even reverse—liver fibrosis. A search for a noninvasive test for liver fibrosis is another valuable and potentially lifesaving area of inquiry that is being pursued.

Research in fibrosis took an exciting and unexpected turn when Dr. Friedman, John Martignetti, MD, Associate Professor of Human Genetics, and
then-graduate student Goutham Narla identified a tumor suppressor gene that is missing or mutated in many forms of cancer.

The original research, demonstrating the role of the gene KLF6 as a tumor suppressor, was published in *Science* in 2001. In 2005 the team again published results from their investigations, this time in *Cancer Research*. Their work demonstrated how a single variant of KLF6 may increase a man’s risk of prostate cancer by 50 percent.

Kirsten Sadler-Edepli, PhD, Assistant Professor of Medicine, joined the Division in 2005 and established the first zebra fish facility at the Mount Sinai School of Medicine to explore novel models of acute and chronic liver diseases. This unique model organism allows rapid and direct evaluation of genetic defects and molecular mechanisms of disease. Dr. Sadler-Edepli works closely with several other Mount Sinai investigators who are using this unique model to study key biologic pathways in the liver and other organs.

Mount Sinai has had a major and productive interest in primary biliary cirrhosis (PBC) for nearly 50 years, harking back to landmark studies conducted by Drs. Hans Popper and Fenton Schaffner, who became the first Chief of Liver Diseases at Mount Sinai.

The work of Drs. Popper and Schaffner illuminated the clinical spectrum, natural history, and histopathologic evolution of PBC. It also uncovered the nature and significance of cholestasis. This tradition of groundbreaking PBC research continues in the Primary Biliary Cirrhosis Center, led by Joseph Odin, MD, Assistant Professor.

Liver Cancer
Hepatocellular carcinoma (HCC) is a major global health problem. It is now the third leading cause of cancer-related death worldwide.

Josep Llovet, MD, Visiting Associate Professor of Medicine, joined the faculty in 2005 as Director of HCC Research of the Mount Sinai Liver Cancer Program. The HCC research program is a new initiative undertaken in partnership with the Recanati/Miller Transplantation Institute and the Division of Hematology and Medical Oncology to identify new molecular pathways of hepatocellular carcinoma as well as novel treatments for the disease.

An international randomized clinical trial recently led by Dr. Llovet places the Division in the forefront of clinical research in HCC. The trial, which compared the multikinase inhibitor sorafenib to a placebo, was terminated prematurely due to overwhelmingly positive survival results favoring treatment. According to Dr. Llovet, “Mount Sinai was the leading patient recruitment center in the United States. I am pleased to note that it is the first time in which the scientific community has had a positive trial in treating advanced HCC. It is also the first time that a molecularly targeted therapy has been tested in HCC during a phase III trial.”

Transplantation
In 1988 Mount Sinai surgeons performed the first liver transplant in New York State history. Since then, the Recanati/Miller Transplantation Institute at Mount Sinai has become one of the world’s leading transplant centers. Medical specialists in the Division of Liver Diseases work closely with transplant surgeons to care for patients both before and after transplantation.

Thomas Schiano, MD, Associate Professor of Medicine, holds primary responsibility for the medical aspects of postoperative care for transplant patients and for identifying specific medical complications that may arise in the posttransplant setting.

Ever mindful of the communities served by Mount Sinai the Division and the Recanati/Miller Transplantation Institute began the Community Transplant Outreach Program, in 2004 led by Nancy Bach, MD, Assistant Professor. The program is designed to extend Mount Sinai’s expertise to affiliate hospitals.

Training Initiatives in Hepatology
The Division conducts nationally recognized training programs in liver disease for its medical house staff and fellows.

3*Science*. 2001; 294;2563-65.
DR. KIRSTEN SADLER-EDEPLI is studying zebra fish models of liver disease in her laboratory at Mount Sinai.
In the year 1957, the recruitment of Hans Popper, MD, to the Division of Pathology would greatly advance the study of liver diseases at Mount Sinai and help propel the Medical Center to international prominence.

The driving force behind creation of the Mount Sinai School of Medicine, Dr. Popper was Chief of Pathology at Mount Sinai and the first Dean of the Medical School. He wrote over 800 clinical articles and 28 books on liver disease.

Universally regarded as “The Father of Modern Hepatology” for his tireless research into liver function and pathology, Dr. Popper’s leadership of the Department of Pathology, and his work in helping create the Mount Sinai School of Medicine, would transform Mount Sinai into “the” place for the study and treatment of liver disease.

The Division’s commitment to training was recently highlighted by the awards of three AASLD/Schering Advanced Hepatology Fellowships to Divisional trainees, more than any institution in the country. In addition, Efsevia Albanis, MD, Assistant Professor of Medicine, an MSSM graduate, won the highly prestigious AASLD/AMGEN Physician Development Award in 2006.

The Division has recently created additional advanced training opportunities to prepare national and international leaders in the treatment of liver disease.

The Advanced Clinical Hepatology Fellowship Program is considered a national model for specialized training and advanced certification in the specialty. Directed by Meena Bansal, MD, Assistant Professor of Medicine, the Liver Disease Fellowship at Mount Sinai is the largest program of its kind in the United States. It provides fellows with an intensive year of advanced clinical training to prepare them as future teachers and researchers in hepatology. Trainees are eligible for a Certificate of Added Qualification, a category of expertise newly created by the American Association for the Study of Liver Diseases.

Mount Sinai is the only School of Medicine in the New York metropolitan area to receive a multi-year NIH Training Grant in Liver Diseases and Gastroenterology. This NIH grant funds an interdisciplinary program that prepares independent researchers in basic and clinical research, including cancer biology, immunology, liver injury, fibrosis, molecular basis of transport and gene therapy, and clinical research.

Together with unrestricted industry-sponsored support, the NIH training grant also funds a unique Visiting Professor Program led by Dr. Albanis. The program permits national and international leaders in hepatology to spend two days each visiting and exchanging ideas with Mount Sinai faculty, fellows, and staff.

In 2006 the Division inaugurated a postgraduate course, the First Annual Mount Sinai Hepatology Update, directed by Drs. Dieterich and Martin, which features presentations from internationally known liver disease experts.
The investigational work on co-infection by Dr. Dieterich, who joined the Division in 2003, has positioned Mount Sinai as an international leader in research and clinical care related to co-infection with HCV and HIV.
DR. BARBARA MURPHY was voted President-Elect of the American Society of Transplantation in 2007.

The Division’s funding from the NIH has increased from $3.7 Million in 2001 to over $11 Million in 2006.
Teaming Up for Clinical Excellence

Even before Mount Sinai was the first in New York to open a dialysis facility in 1957, the Hospital was already a major center for the care of kidney disease. Today, as a regional referral center, the Division provides consultation and comprehensive evaluation and treatment programs that include one of the largest peritoneal dialysis programs in the country.

Between 2001 and 2006, the number of inpatients cared for by nephrologists at The Mount Sinai Hospital increased by 51 percent. Over this same period, the severity of illness in kidney patients also increased as demonstrated by a significant increase in the case mix index, a measure of case complexity, between 2002 and 2006.

Strong in its own right, the care the Division provides patients is further enhanced through partnerships with other groups within Mount Sinai, particularly the Recanati/Miller Transplantation Institute, the Brookdale Department of Geriatrics, and the Division of Infectious Diseases.

Mount Sinai was one of the first in the region to perform kidney transplants. In 2006 Mount Sinai’s outcomes for one-year and three-year survival rates for kidney transplantation were the best in the region despite the fact that many Mount Sinai patients have significant co-morbidities.

The coordination of care between nephrologists and transplant surgeons before and after surgery is a major factor in how well patients recover. Led by Dr. Murphy, Transplant Nephrology at Mount Sinai has developed many of the cutting edge protocols for patients including ones for desensitizing recipients with high immunological risk factors, transplants for HIV positive patients, and immune monitoring as a means of risk stratification of transplant recipients.

The field of geriatrics was created at Mount Sinai and the Medical Center is consistently ranked in the top five in the nation in this discipline. Housed within the Brookdale Department of Geriatrics is one of the most renowned palliative care programs, the Herzberg Palliative Care Institute. So, it is only natural that Mount Sinai would be the first in the country to create a Geriatric Nephrology and Renal Palliative Care Program, which is directed by Mark Swidler, MD, Assistant Professor of Medicine, a nephrologist who is board-certified in both renal medicine and geriatrics and has palliative medicine certification thru the American Board of Hospice and Palliative Medicine.

Mount Sinai is one of only two New York State Department-of-Health-designated AIDS Centers. The work of nephrologists on HIV associated nephropathy (HIVAN) was highlighted in New York magazine’s 2006 Best Hospitals issue.

HIVAN is now the third leading cause of renal failure in African Americans, the most common cause of chronic renal failure in HIV-1 infected individuals. Dr. Klotman is principal investigator on a program project grant from the National Institute of Diabetes and Digestive and Kidney Diseases to study the pathogenesis of HIVAN. Together with colleagues in the Divisions of

Five years ago, Paul Klotman, MD, stepped down as Chief of the Division of Nephrology to become Chairman of the Department of Medicine. After a national search, Barbara Murphy, MD, Irene and Dr. Arthur M. Fishberg Professor of Medicine, was selected as the new Chief of Nephrology. Her research on transplant immunology has added another dimension to Mount Sinai’s renowned transplant programs.

In 2007 Dr. Murphy was voted President-Elect of the American Society of Transplantation. Her term as President will begin in May of 2008.
Nephrology and Infectious Diseases, he is testing the hypothesis that HIVAN is a disease in which HIV-1 infection of the renal epithelium is required but not sufficient to induce the disease. Genetic factors are believed to be responsible for susceptibility and progression.

Research and Discovery
Mount Sinai’s clinical strengths in nephrology are largely an outgrowth of the active research programs in the field. The Division’s funding from the NIH has increased from $3.7 million in 2001 to over $11 million in 2006.

Several researchers in the Division are studying the molecular genetics, cell biology, and pathophysiology of autosomal dominant polycystic kidney disease (ADPKD), the most common genetic disease in humans—affecting six million people worldwide.

Patricia Wilson, MD, Professor of Medicine, was recently awarded a US Patent for a method to assay the effects of potential drug therapies for ADPKD.

Peter Mundel, MD, Professor of Medicine, is investigating the cell biology and pathology of podocytes, highly differentiated cells, which play a crucial role in the physiology and pathology of the kidney glomerulus. In a 2006 paper in *Nature Cell Biology*, he and his colleagues identified a protein that is essential for the integrity of the podocyte cytoskeleton and for regulation of podocyte cell migration.¹

Transplantation
Building on Mount Sinai’s leadership in transplantation, nephrologists are working to improve outcomes and increase the availability of donor organs. Dr. Murphy is the primary investigator on a program project grant awarded as part of the Genomics Consortium from the National Institute of Allergy and Infectious Diseases in 2006 to study the genomics of chronic allograft rejection, which remains the most common cause of graft loss.

In a recent clinical trial, Elizabeth Ommen, MD, Instructor of Medicine, was able to increase by 73 percent the number of eligible kidney donors by using ambulatory blood pressure monitoring to differentiate between individuals with white coat hypertension and those with sustained hypertension. Her work examining cardiovascular risk in living kidney donors has recently been funded by the NIH.

Peter Heeger, MD, Professor of Medicine, was recruited from the Cleveland Clinic in 2006. He is building a comprehensive translational research program in transplant immunology as Director of the newly created Transplant Immunology Research Program. Dr. Heeger developed an assay that offers the potential to identify individual patients at risk of developing rejection, information that may be used to determine when the risks of immune complications warrant the side effects often seen with medication.

Islet cell transplantation is a focus of much research in the Division. Currently donations are often needed from multiple donors because the process of physically manipulating the cells can cause them to release substances that stimulate inflammation. In a paper published in the *Journal of the American Society of Nephrology* in 2005,² Mount Sinai nephrologists reported on a technique that significantly increased islet cell function post-transplantation.

A Personalized Approach
Erwin Böttinger, MD, Vice Chair of Research for the Department of Medicine and a member of the Division of Nephrology, is heading up Mount Sinai’s efforts in personalized medicine as Director of the newly established Charles Bronfman Institute for Personalized Medicine. He is currently focused on developing a biobank of over 100,000 DNA samples that will be linked to clinical information, allowing researchers to connect genotype and phenotype to begin to tailor treatments to specific needs.

Work in this area is already well advanced in the Division. Several years ago Michael Lipkowitz, MD,¹

DR. ERWIN BÖTTINGER is currently focused on developing a biobank of over 100,000 DNA samples that will be linked to clinical information, allowing researchers to connect genotype and phenotype to begin to tailor treatments to specific needs.
Associate Professor of Medicine, had the foresight to collect DNA samples from the African American Study of Kidney Disease and Hypertension trial, a large multi-center trial run by the NIH.

Now that the technology is available, he is using these samples to conduct genetic and pharmacogenomic studies to understand the genetic basis for susceptibility to hypertension, progressive renal failure, and their sequelae such as cardiac hypertrophy, coronary artery disease, and atherosclerosis, as well as effectiveness of drug therapy.

**Fellow to Faculty**

The stated goal of most fellowship programs is to train the future leaders in academic medicine. The question is: Are they succeeding?

**OF THE 31 FELLOWS TO GRADUATE FROM THE NEPHROLOGY FELLOWSHIP PROGRAM AT MOUNT SINAI SINCE 1999, 23 HOLD FULL-TIME ACADEMIC POSITIONS AND COMBINED THEY HAVE WELL OVER 90 PUBLICATIONS INCLUDING SEVERAL IN THE NEW ENGLAND JOURNAL OF MEDICINE & NATURE GENETICS.**

Over 240 applications are received for the five spots open in the program each year. The fellows entering in 2006 were graduates of Columbia University, Mount Sinai School of Medicine, University of Chicago, University of Texas, and University of Miami.

The strength of the Program led to receipt of a prestigious NIH Training Grant in Molecular Basis of Renal Disease. This grant helps support fellows conducting basic, clinical and translational research in a wide variety of areas including virology, immunology, transplantation, genetics, and developmental and stem cell biology. Working with faculty mentors, the fellows receive the support needed for a smooth transition from fellow to junior faculty member.

With graduates so well prepared for academic careers, the Division has not had to look far when seeking to recruit exceptional new faculty. Eight of the last ten faculty members to join the Division have come from its own Fellowship Program and many have already taken on leadership roles. These new recruits have also been tremendously successful in competing for research funding as evidenced by the receipt of eight prestigious career development awards from NIH.
DR. PETER HEEGER developed an assay that offers the potential to identify individual patients at risk of developing rejection, information that may be used to determine when the risks of immune complications warrant the side effects often seen with medication.

DR. ELIZABETH OMMER is educating the community about Chronic Kidney Disease.
DR. MICHAEL IANNUZZI was the first to identify genes that cause sarcoidosis.

Total grant funding to the Division rose 174 percent between 2002 and 2006.
When Division Chief Michael Iannuzzi, MD, Florette and Ernst Rosenfeld and Joseph Solomon Professor of Medicine, was recruited in 2003, he began building upon Mount Sinai’s superb reputation as a leader in respiratory disease research and patient care.

Over the past five years, the Division of Pulmonary, Critical Care and Sleep Medicine has witnessed significant growth in both clinical practice and research. For example, the number of inpatient cases managed by faculty in the Division increased 41 percent between 2001 and 2006 and the Division’s case mix index—an expression of case complexity—increased significantly. Total grant funding to the Division rose 174 percent between 2002 and 2006.

A Stellar History, a Promising Future
Dr. Alfred Meyer, Mount Sinai’s first pulmonologist, was the first physician in New York State to establish and promote sanatorium care for tuberculosis patients in the 1890s. Patients requiring supplemental oxygen also have Dr. Meyer to thank for his introduction of the oxygen tank into the inpatient hospital setting.

It was at Mount Sinai that one of the first sarcoidosis clinics was established in 1948. Subsequently, Alvin Teirstein, MD, Professor of Medicine, built on this pioneering work in sarcoidosis and expanded its purview to include research and treatment of other interstitial lung diseases.

Dr. Teirstein is now the Director of the Vivian Richenthal Institute for Pulmonary and Critical Care Research. In 2006 Catherine and Henry J. Gaisman, longstanding supporters of Mount Sinai, contributed funds for a new auditorium named in Dr. Teirstein’s honor at Mount Sinai School of Medicine.

Sarcoidosis/Interstitial Lung Disease
The Mount Sinai Medical Center is classified as one of only ten Centers of Excellence for research in sarcoidosis. This is the largest program of its kind in the world.

Interstitial lung disease is one of Dr. Iannuzzi’s primary research interests, along with the molecular genetics of lung diseases, minority health, and genetic susceptibility to lung disease.

In 2005 he published results from the first genome scan for the disease, which included the first discovery of genes that cause sarcoidosis. That same year, in another study, he confirmed the critical importance of sarcoidosis candidate genes in both African Americans and Caucasians.

In 2004 Maria Padilla, MD, Professor of Medicine, joined the faculty as Director of the Pulmonary Fibrosis and Interstitial Lung Disease Center and Co-Director of the Lung Transplantation Program along with Scott Swanson, MD, Professor of Cardiothoracic Surgery. This was a return to Mount Sinai for Dr. Padilla, who had trained at the Medical Center and previously served as a faculty member.

Lori Shah, MD, Assistant Professor of Medicine, was recruited in 2004 as Associate Medical Director of the Lung Transplantation Program. Dr. Shah is also developing an Adult Cystic Fibrosis Program to address growing needs as adults with cystic fibrosis are living longer, requiring more research as well as more intensive disease management.

To thank the Division for the services provided to Lucille Fennessy when she was treated for rapidly progressive interstitial lung illness, her family and friends established the Fennessy Research Fund. The Fund supports ongoing research efforts within the Division.
Asthma Program
Mount Sinai serves a community—East Harlem—with the highest rates of pediatric and adult asthma in the nation. Mount Sinai faculty members are striving—through patient care, community outreach, and research programs—to reduce these rates.

Mount Sinai is part of the Asthma Clinical Research Center (ACRC), a nationwide network involving 19 centers committed to asthma research. Gwen Skloot, MD, Assistant Professor of Medicine, leads the investigative team at Mount Sinai.

The first study under the auspices of the ACRC evaluated safety of the inactivated influenza vaccine in adults and children with asthma. Results were published in the *New England Journal of Medicine*¹ and demonstrated that inactivated influenza vaccine is safe to administer to adults and children with even severe asthma. The study group also recommended that all patients with asthma should receive the influenza vaccine annually.

In 2004 Mount Sinai was among seven Asthma Centers nationwide that participated in a study of inner-city asthma that was cosponsored by the NIH. The results were also published in *The New England Journal of Medicine*² and showed that, among inner-city children with asthma, individualized, home-based, environmental intervention decreases exposure to indoor allergens and results in reduced asthma-associated morbidity.

E. Neil Schachter, MD, Professor of Medicine, a specialist in environmental and occupational airway disease, is the author of a number of consumer-health publications. His most recent patient-education books include *Life and Breath: The Breakthrough Guide to the Latest Strategies for Fighting Asthma and Other Respiratory Problems—At Any Age* (Broadway Books, New York: 2004), and *The Good Doctor’s Guide to Colds and Flu* (Harper-Torch: 2006; English and Spanish versions).

Ever since the September 11 terrorist attacks, emphasis has been placed on the treatment of asthma in individuals who worked or volunteered at Ground Zero and other sites. This work has been performed in collaboration with the Mount Sinai World Trade Center Worker and Volunteer Medical Screening Program.

Interventional Bronchoscopy
Probably one of the more exciting new developments in patient care is the Interventional Bronchoscopy Service at The Mount Sinai Medical Center. In 2006 Mount Sinai opened a new endoscopy suite that includes state-of-the-art bronchoscopy facilities. Both routine and advanced procedures are provided to inpatients and outpatients in a suite that offers both the most advanced technology and a patient-friendly environment.

Timothy J. Harkin MD, Associate Professor of Medicine, joined the Division in 2006 and currently runs the Interventional Bronchoscopy Program. He was recently appointed Clinical Director for the Division. Dr. Harkin is the primary investigator of two multi-center studies of new bronchoscopic treatments, one for emphysema and the other focused on CT-scan guided ultrathin bronchoscopy.

Sleep Medicine
Because research demonstrates a significant link between sleep disorders and numerous health conditions including cardiovascular disease, hypertension, diabetes, and obesity, sleep medicine has grown considerably as a specialty.

In 2005 Mount Sinai opened a new, expanded Center for Sleep Medicine and R. Nisha Aurora, MD, Assistant Professor of Medicine, was appointed director in October of 2006. The newly expanded Sleep Center has the capacity to conduct six simultaneous sleep studies per night and offers the most advanced diagnostic and treatment options available.

DR. MARIA PADILLA joined the Division in 2004 as Director of the Pulmonary Fibrosis and Interstitial Lung Disease Center and Co-Director of the Lung Transplantation Program.
The Critical Care Education Center is the most modern and advanced teaching center for critical care in the region.
Critical Care
The Division staffs a fourteen-bed technologically sophisticated Medical Intensive Care Unit (MICU), with a nursing ratio 1:2 or 1:1, as well as a Respiratory Care Unit (RCU).

In recent years, research conducted by Judith Nelson, MD, Associate Professor of Medicine, and others at Mount Sinai has confirmed the value of introducing palliative care into the MICU/RCU setting. For her work, Dr. Nelson was named the 2002 recipient of the Roger C. Bone Award for Advances in End-of-Life Care, given by the CHEST Foundation of the American College of Chest Physicians. She also received a career development award from the American Lung Association to study decision-making by patients.

Education and Training
Under the directorship of Scott Lorin, MD, Assistant Professor of Medicine and Program Director of the Pulmonary and Critical Care Medicine Fellowship, fellows receive comprehensive education and training in pulmonary and critical care medicine.

After joining the faculty in 2002, Dr. Lorin developed the Critical Care Education Center, the most modern and advanced teaching center for critical care in the region. The Center includes the Human Patient Simulator, a sophisticated, life-sized computer-driven mannequin that can be programmed to simulate a variety of scenarios involving acutely ill patients under emergent conditions.

Dr. Lorin also worked with experts at Mount Sinai’s Morchand Center for Clinical Competence to develop a program for medical students and house staff to improve their communications skills with families of critically ill patients. The Morchand Center was one of the first centers in the nation to use specially trained actors as standardized patients to help doctors-in-training develop and refine communications skills. Dr. Lorin and his colleagues have published several papers on this new program.

Another recent innovation created within the Fellowship Program is the Transplant Service Rotation. This provides fellows with exposure to the management of patients with complex medical problems related to immunosuppression.

Graduates of the Division’s fellowship program have become faculty members and division chiefs in pulmonary and critical care medicine throughout the United States, and in parts of Europe, the Middle East, and Asia.
DR. PETER GOREVIC is examining the pathogenesis of the various forms of amyloid disease, with emphasis on those that are concomitant with the aging process.
According to Division Chief Peter D. Gorevic, MD, Lillian and Henry M. Stratton Professor of Medicine (Rheumatology), the incidence and severity of musculoskeletal and autoimmune diseases rise along with each passing birthday. As the US population ages, there has been a considerable upswing in these conditions. One indicator of this trend is a 30 percent increase in new and established patient visits to the Rheumatology faculty practice at Mount Sinai over the past three years.

In addition, the Division’s case mix index, a measure of case complexity, has risen fairly steadily over the past five years. The inpatient consultation service remains among the busiest within the Department of Medicine in terms of patient caseload and opportunities for physician education and training.

Leadership Past and Present

“Mount Sinai has been a leader in rheumatology research since the 1920s, when Drs. Libman & Sacks first described the heart lesions we often see in lupus patients” notes Dr. Gorevic.

In the 1940s Paul Klemperer, MD, was the first to establish the relationship between connective tissue and autoimmune disorders, and to coin the still widely used term “collagen-vascular disease.”

In the 1950s one of the first gout clinics in the United States was founded at Mount Sinai by Alexander Gutman, MD, the first full-time Chairman of Medicine, and Tsai-Fan Yu, MD. Later in the decade, one of the first standardized laboratory tests for diagnosing rheumatoid arthritis was developed at The Mount Sinai Hospital.

Medical education and training in the specialty also advanced significantly at Mount Sinai in the 1970s, when Harry Spiera, MD, Clinical Professor of Medicine, established the Rheumatology Training Program.

Also under Dr. Spiera’s direction, Mount Sinai became one of the first major referral centers for difficult-to-treat autoimmune disorders. Today, he continues to maintain a busy practice and is part of a national consortium funded by the NIH that is developing new therapeutic strategies for Wegener’s granulomatous and other vasculitides.

Center of Excellence

Mount Sinai is one of only four major referral centers for amyloid diseases in the United States. It is a Center of Excellence for the diagnosis and treatment of amyloid diseases, autoinflammatory syndromes, and cryopathies.

Dr. Gorevic is currently examining the pathogenesis of various forms of amyloid disease, with emphasis on those that accompany the aging process. Mount Sinai is one of four amyloid centers in the United States to participate in a clinical trial that has established efficacy for a novel therapeutic agent for secondary amyloidosis, which is currently being evaluated for release by the FDA.

Diverse Expertise

HCV

While most commonly perceived as only affecting the liver, infection with the hepatitis C virus (HCV) often leads to other serious conditions. One of the most common is cryoglobulinemia, a condition in which the presence of abnormal proteins in the bloodstream thicken or gel upon exposure to cold.

Clinical and Mechanism of Action studies are currently underway at Mount Sinai to establish efficacy of B cell depletion for the treatment of mixed cryoglobulinemia, which has a 60-80 percent association with chronic HCV infection.
IN MEMORIAM: TSAI-FAN YU
A GIANT OF MOUNT SINAI RHEUMATOLOGY PASSES IN 2007 AT AGE 95

She was born in Shanghai, China in 1911, received her medical degree with highest honors, and became chief resident in Internal Medicine at Peking Union Medical College in 1939, an unprecedented feat for a female physician during that era. However, that was only the beginning of a long and an illustrious career of research and patient care, most of it performed at Mount Sinai.

Dr. Yu came to Mount Sinai as an associate professor of internal medicine in 1957. Her research was continuously funded by the NIH for an astounding 26 years. In the 1950s, Dr. Yu helped to found one of the first gout clinics at Mount Sinai. Working with long time colleague and collaborator Alexander B. Gutman, MD, then Chair of the Department of Medicine, she helped establish a metabolic connection between elevated levels of uric acid and the pain experienced by gout patients.

Drs. Yu and Gutman conducted seminal studies that established the value of drugs such as probenecid and allopurinol for this often debilitating disease, as well as the safety and efficacy of prophylactic colchicine, which remains in use today as an effective gout treatment.
The clinical studies are examining the overlapping syndromes of arthropathy, vasculopathy, neuropathy, and glomerulonephropathy. Concomitant studies are targeted to examining B cell subsets in peripheral blood and tissue lesions, and the role of the B cell in chronic HCV infection. Therapy for extrahepatic diseases associated with HCV is also being explored in a study investigating combination therapy with pegylated interferon (IFN).

Collaborative studies with the laboratory of Dr. Gerard Nuovo, Professor of Pathology at Ohio State Medical School, are using in situ techniques to define the presence of viral RNA and specific host messaging in tissue samples from patients with HTLV1 and HCV-associated rheumatic disease.

Gout
Mount Sinai has been a major referral center for gout for more than 50 years. Today, the disorder has grown in prevalence and complexity with an increasing population of elderly people affected by metabolic syndrome, and of patients with renal insufficiency or who have undergone organ transplantation.

For patients with refractory tophaceous gout intolerant of standard therapeutics, a phase III, international multi-center trial of a novel therapeutic agent, uricase, is currently in progress.

Sjogren’s Syndrome
The Lowenstein Foundation’s Sjogren’s Disease Center at Mount Sinai is one of the few regional centers for this syndrome in the country. The Center seeks to provide multidisciplinary consultations and care for persons affected by this disorder.

Geriatric Rheumatology
Leslie Kerr, MD, Associate Professor, has particular expertise in geriatric rheumatology. A number of years ago, she established an interdisciplinary clinic with Mount Sinai’s renowned Coffey Geriatric Practice to address the needs of elderly patients presenting with a wide array of disorders.

Outreach
Division faculty members act as an important resource for the National Amyloidosis Support Group, which meets regularly at Mount Sinai, as well as for the South Harlem Lupus Support Group. In addition, the Division is active with other patient groups through its participation in the New York chapter of the National Arthritis Foundation.

Two Division faculty members—Dr. Kerr and Michael Naarendorp, MD, Clinical Instructor of Medicine—provide community-based services at East Harlem’s North General Hospital. The two rheumatology clinics there, staffed by these physicians and Rheumatology fellows, bring qualified subspecialty care to the local community.

Training the next generation of specialists is essential to ensuring continued care for patients. For the 2006/07 academic year, the Division received more than 100 applications for one open fellowship slot. Division faculty also support the Rheumatology fellowship at Mount Sinai’s affiliate hospitals with elective rotations.

Dr. Kerr developed the Annenberg Connective Tissue Disease Clinic, a major training venue for fellows and a significant component of the rotation in this specialty for residents and medical students.
FROM A LIST OF 199 HOSPITALS, MOUNT SINAI SCORED THE HIGHEST OF ANY SINGLE HOSPITAL.

New York magazine, 2007
Faculty associated with the Samuel Bronfman Department of Medicine are widely recognized by their peers as leaders in their respective fields as evident by their election to membership in prestigious organizations.
New York magazine asked over 1,000 doctors in the metropolitan area where they would go for treatment for a wide-array of disorders. From a list of 199 hospitals, The Mount Sinai Medical Center scored the highest of any single hospital, second only to the combined New York-Presbyterian Hospital. The Mount Sinai Hospital was ranked in the top 5 in every category.

In the medical specialties ranked, Mount Sinai is first in digestive disorders, third in cancer, and third in cardiac care. In addition to the specialties that were ranked, New York magazine selected the top programs in a number of other areas. The Jack Martin Fund Clinic was the runner-up in the HIV/AIDS category. The article noted that Mount Sinai is one of just a handful of New York State Designated AIDS Centers and highlighted Mount Sinai’s research program on renal complications of HIV.

BEST DOCTORS

ENDOCRINOLOGY, DIABETES AND BONE DISEASE
Donald Bergman, MD, Clinical Professor
Terry Davies, MD, Professor

CARDIOLOGY
Sanford Friedman, MD, Associate Clinical Professor
Valentin Fuster, MD, PhD, Professor
Jonathan Halperin, MD, Professor
Arthur Kennish, MD, PhD, Assistant Clinical Professor
Jose Meller, MD, Clinical Professor
Samin Sharma, MD, Professor

CLINICAL IMMUNOLOGY
Ellen Buchbinder, MD, Assistant Clinical Professor
Charlotte Cunningham-Rundles, MD, PhD, Professor

GASTROENTEROLOGY
Lawrence Cohen, MD, Associate Clinical Professor
Steven Itzkowitz, MD, Professor
Mark Korsten, MD, Professor
Daniel Present, MD, Clinical Professor
David Sachar, MD, Clinical Professor
Jerome Waye, MD, Clinical Professor

GENERAL MEDICINE
George Fisher, MD, Adjunct Clinical Instructor
Albert Levy, MD, Assistant Clinical Professor
Fredrick Sherman, MD, Professor

HEMATOLOGY-ONCOLOGY
Seymour Cohen, MD, Associate Clinical Professor
Janice Gabrilove, MD, Professor
Steven Gruenstein, MD, Associate Clinical Professor
James Holland, MD, Professor

INFECTIOUS DISEASES
Glenn Hammer, MD, Assistant Clinical Professor
Mary Klotman, MD, Professor
Jeffrey Paul Gumprecht, MD, Assistant Clinical Professor

LIVER DISEASES
Douglas Dieterich, MD, Professor
Paul Martin, MD, Professor

NEPHROLOGY
Paul Klotman, MD, Professor
Jonathan Winston, MD, Associate Professor

PULMONARY
Allen Gribetz, MD*
Maria Padilla, MD, Professor
Alvin Teirstein, MD, Professor

RHEUMATOLOGY
Peter Gorevic, MD, Professor
Mark Horowitz, MD, Clinical Instructor
Harry Spiera, MD, Clinical Professor

*Dr. Allen Gribetz passed away shortly after these rankings were published in 2006. He had been a valued member of the Department of Medicine for over 35 years.
New York magazine’s “Best Doctors ‘06” issue listed 37 Mount Sinai Department of Medicine faculty members. Along with the listing of top physicians, the magazine included profiles of “Medical Miracles.” Valentin Fuster, MD, PhD, Professor of Medicine and Chief of Cardiology was highlighted in this section for his work with Mara Romero a 50-year old woman who received a rare heart and lung transplant.
“While Mount Sinai has always attracted students from the most prestigious schools, today we attract the top students from these schools.”  

Paul Klotman, MD  
Chairman

<table>
<thead>
<tr>
<th>Resident Name</th>
<th>Medical School</th>
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<tbody>
<tr>
<td>Sarah Adams, MD, PhD, MPH</td>
<td>Yale University School of Medicine</td>
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<td>Ritu Agarwal, MD</td>
<td>Tufts University School of Medicine</td>
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<td>Richard Altman, MD</td>
<td>University of Pittsburgh School of Medicine</td>
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<td>Daniel Amaez, MD</td>
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<td>David Banach, MD, MPH</td>
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<td>Priya Batra, MD</td>
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<td>Katharine Batt, MD, MS</td>
<td>SUNY Buffalo School of Medicine</td>
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<td>Megan Bernstein, MD</td>
<td>University of Connecticut School of Medicine</td>
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<td>Raymond Bietry, MD</td>
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<td>Westyn Branch-Elliman, MD</td>
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<td>University of Medicine &amp; Dentistry of New Jersey/R.W.J. Medical School</td>
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<td>Rachel Chasan, MD, MPH</td>
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<td>Ricardo Esquitin, MD</td>
<td>Mount Sinai School of Medicine</td>
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<td>Rachel Farley-Loftus, MD</td>
<td>Columbia University College of Physicians and Surgeons</td>
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<td>John Galvin, MD, MPH, MS</td>
<td>University of Illinois College of Medicine</td>
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<td>Alok Gambhir, MD, PhD</td>
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<td>Caroline Groft, MD, PhD</td>
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<td>Rachel Gross, MD</td>
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<td>Daniela Jodorkovsky, MD</td>
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<td>Safa Kalache, MD</td>
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<td>Ezra Kassin, MD</td>
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<td>John Kazianis, MD</td>
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<td>Katherine Krauskopf, MD</td>
<td>Mount Sinai School of Medicine</td>
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<td>Marina Kremyanskaya, MD, PhD</td>
<td>University of Pennsylvania School of Medicine</td>
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Anuradha Lala, MD  
University of Medicine & Dentistry of New Jersey/R.W.J. Medical School

Dana Levy, MD  
Mount Sinai School of Medicine

Natasha Lipson, MD  
University of Colorado  
School of Medicine

Goutham Narla, MD, PhD  
Mount Sinai School of Medicine

Daniel O’Connor, MD, PhD  
SUNY Downstate College of Medicine

Ann Ostrovsky, MD, MS  
Albany Medical College

Yevgenia Pashinsky, MD  
Mount Sinai School of Medicine

Carolin Penrose, MD  
New York Medical College

Vinay Ravi, MD  
George Washington University  
School of Medicine

Jordan Rush, MD  
SUNY Buffalo School of Medicine

Sean Sadikot, MD  
Boston University School of Medicine

David Schaner, MD  
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Simona Shaitelman, MD, MEd  
Harvard Medical School

Jason Silverston, MD  
Mount Sinai School of Medicine

Kristofer Smith, MD, MPP  
Boston University School of Medicine

Arvind Trindade, MD  
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Torsten Vahl, MD  
Philipps-Universitat Marburg

Lan Wang, MD  
Columbia University College of Physicians and Surgeons

Melanie Wijetunga, MD  
Mount Sinai School of Medicine

Elizabeth Winter, MD  
Johns Hopkins University  
School of Medicine

Dona Wu, MD, PhD, MA  
Albert Einstein College of Medicine/ Yeshiva University

Timothy Zagar, MD  
Mount Sinai School of Medicine

Jonathan Zippin, MD, PhD  
Cornell University Medical College

Adam Zucker, MD  
Duke University School of Medicine

THE CLASS OF 2009 INCLUDES NINE MD/PHD GRADUATES, MORE THAN ANY OTHER PROGRAM IN THE COUNTRY.
FELLOWS 2006

Fellow Name
Medical School
Residency

CARDIOLOGY
Investigator Track

Sammy Elmariah, MD
University of Pennsylvania
School of Medicine
Hospital of The University of Pennsylvania

Randolph Hutter, MD
Ludwig Maximillians University of Munich
Mount Sinai School of Medicine

Steven Lubitz, MD
University of Michigan
Medical School
Mount Sinai School of Medicine

Marc Miller, MD
Sackler School of Medicine
Mount Sinai School of Medicine

Scott Shapiro, MD
Albert Einstein College of Medicine
Columbia Presbyterian

Rajesh Vedanthan, MD
University of California at San Francisco
Brigham & Young Women’s Hospital

Urban Community

Seth Jawetz, MD
Columbia University College of Physicians & Surgeons
Mount Sinai School of Medicine

Janice Scobie, MD
University of Pennsylvania
School of Medicine
Hospital of The University of Pennsylvania

Joshua Shatzkes, MD
SUNY - Downstate Medical Center
Yale University

Russell Stein, MD
Medical College of Wisconsin
Mount Sinai School of Medicine

Electrophysiology

Zyad Younan, MD
St. George’s University
MCP/Hahnemann
University Hospital

Steve Furer, MD
SUNY - Downstate Medical Center
Montefiore Medical Center

Interventional Cardiology

Varin Arora, MBBS
Gandhi Medical College
North Shore University Hospital

Fadi El-atat, MD
American University of Beirut
SUNY Downstate Medical Center

Sameet Palkhiwala, MD
New York Medical College
St. Luke’s Roosevelt Hospital

Robert Pyo, MD
University of Illinois
Elmhurst Medical Center

Sanjay Rajdev, MBBS
Gandhi Medical College
Gandhi Medical College

Anthony Shih, MD
SUNY Buffalo
Hospital of The University of Pennsylvania

Anjan Sinha, MBBS
Rajendra Medical College
Long Island College Hospital

CLINICAL IMMUNOLOGY

Danna Chung, MD
University of Pennsylvania
School of Medicine
Beth Israel Deaconess Medical Center

Katherine Bloom, MD
Albert Einstein College of Medicine
New York Presbyterian Hospital/Columbia University Medical Center

Heather Lemon-Mule, MD
Memorial University of Newfoundland
Schneider Children’s Hospital

ENDOCRINOLOGY, DIABETES AND BONE DISEASES

Himani Chandra, MD
Georgetown University School of Medicine
Beth Israel Deaconess Medical Center

Maria Skamagas, MD
SUNY Stony Brook School of Medicine
Mount Sinai School of Medicine

Michael Via, MD
New York University School of Medicine
Brown University

Dima Yeshou, MD
Aleppo University School of Medicine in Syria
Englewood Hospital Medical Center
Beth Israel Medical Center
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<tr>
<th>Specialty</th>
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<td>Gastroenterology</td>
<td>Ype de Jong, MSc, MD, PhD</td>
<td>Mount Sinai School of Medicine</td>
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<td>Elliot Ellis, MD</td>
<td>University of Pennsylvania</td>
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<td>Jae Geun Hyun, MD</td>
<td>Hanyang University College, Samsung Korea, University of Arizona</td>
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<td>Lauren Schwartz, MD</td>
<td>Yale University, New York Presbyterian Hospital</td>
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<td>Jianlin Xie, MD</td>
<td>Jiangxi, Long Island Jewish Medical Center</td>
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<td>General Internal Medicine</td>
<td>Gina Jae, MPH, MD</td>
<td>Columbia University, Mount Sinai School of Medicine</td>
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<td>Hematology and Medical Oncology</td>
<td>Nouneh Gostanian, MD</td>
<td>University of Virginia School of Medicine, Stony Brook University Hospital</td>
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<td>Alla Keyzner, MD</td>
<td>Drexel University College of Medicine, Mount Sinai School of Medicine</td>
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<td></td>
<td>Krzysztof Misiukiewicz, MD</td>
<td>Medical Academy of Wroclaw, City Hospital of Czestochowa (1 year) and Saint Barnabas Hospital (2 years)</td>
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<td></td>
<td>Olugbenga Olowokure, MD</td>
<td>University of Maiduguri, St. John’s Episcopal Hospital</td>
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<td>Nephrology</td>
<td>Cardinale Smith, M.D.</td>
<td>Drexel University College of Medicine, Mount Sinai School of Medicine</td>
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<td>Infectious Diseases</td>
<td>Edith Sonnenberg, MD</td>
<td>University of Medicine &amp; Dentistry of New Jersey, R.W.J. University Hospital</td>
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<td>Mina Pastagia, MD</td>
<td>SUNY Downstate College of Medicine, Boston Medical Center</td>
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<td>Jooyun Lee, MD</td>
<td>Seoul National University, Westchester Medical Center</td>
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<tr>
<td>Liver Diseases</td>
<td>Costica Aloman, MD</td>
<td>Institute De Med Si Farm, Fundeni Hospital, Michael Resse Hospital and University of Iowa Hospital</td>
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<td></td>
<td>Prasun Jalal, MD</td>
<td>Calcutta National Medical Colleges of India, Bronx Lebanon Hospital Center</td>
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<td></td>
<td>Hatef Massoumi, MD</td>
<td>Iran University of Medical Sciences, Our Lady of Mercy Hospital</td>
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<td></td>
<td>Mohamed Alzaabi, MD</td>
<td>The United Arab Emirates University, Case Western Reserve University</td>
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<td></td>
<td>Veronika Dubrovskaya, MD</td>
<td>Virginia Commonwealth University, Beth Israel Medical Center</td>
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<tr>
<td></td>
<td>Henry Chiu, MD</td>
<td>University of Maryland, University of Florida Nephrology</td>
</tr>
<tr>
<td>Pulmonary, Critical Care and Sleep Medicine</td>
<td>Alpa G. Desaim, MD</td>
<td>Albany Medical College, Temple University Hospital</td>
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<td></td>
<td>Elizabeth B. Gay, MD</td>
<td>New York University School of Medicine, University of Washington Hospital</td>
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<tr>
<td></td>
<td>Joseph Hou, MD</td>
<td>Brown Medical School, Rhode Island Hospital</td>
</tr>
<tr>
<td></td>
<td>Puneet Patni, MD</td>
<td>Baylor College of Medicine, Baylor College of Medicine</td>
</tr>
<tr>
<td>Rheumatology</td>
<td>Waseem Mir, MD</td>
<td>SUNY Downstate College of Medicine, Brown Medical School</td>
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FELLOWS
# DEPARTMENT OF MEDICINE FACULTY*

## CARDIOLOGY

### FULL TIME

<table>
<thead>
<tr>
<th>Name</th>
<th>Title/Role</th>
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<tbody>
<tr>
<td>Fadi Akar, MD</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Juan J. Badimon, PhD</td>
<td>Professor</td>
</tr>
<tr>
<td>Sameer Bansilal, MD</td>
<td>Instructor</td>
</tr>
<tr>
<td>Jiqiu Chen, PhD</td>
<td>Assistant Professor</td>
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<tr>
<td>Lori B. Croft, MD</td>
<td>Assistant Professor</td>
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<tr>
<td>Bruce J. Darrow, MD, PhD</td>
<td>Assistant Professor</td>
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<tr>
<td>W. Lane Duvall, MD</td>
<td>Assistant Professor</td>
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<tr>
<td>Michael E. Farkouh, MD</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Avi Fischer, MD</td>
<td>Assistant Professor</td>
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<tr>
<td>Valentin Fuster, MD, PhD</td>
<td>Professor</td>
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<tr>
<td>Mario J. Garcia, MD</td>
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<tr>
<td>Martin E. Goldman, MD</td>
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<tr>
<td>Joseph A. Gomes, MD</td>
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<tr>
<td>Roger J. Hajjar, MD</td>
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<td>Jonathan L. Halperin, MD</td>
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<tr>
<td>Milena J. Henzlova, MD</td>
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<tr>
<td>Syed Husain, MD</td>
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<td>Jill Kalman, MD</td>
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<td>Yoshiaki Kawase, MD</td>
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<td>Michael C. Kim, MD</td>
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<td>Annapoorna S. Kini, MD</td>
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<tr>
<td>Prakash Krishnan, MD</td>
<td>Instructor</td>
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<td>Djamel Lebeche, PhD</td>
<td>Assistant Professor</td>
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<td>Mary Ann McLaughlin, MD</td>
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<td>Davendra Mehta, MD, PhD</td>
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<td>Pedro R. Moreno, MD</td>
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<td>Ira S. Nash, MD</td>
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<td>Jeffrey W. Olin, DO</td>
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<td>Sean P. Pinney, MD</td>
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<td>Kothandaraman Purushothaman, MD</td>
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<td>Meerarani Purushothaman, MD</td>
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<td>Angel J. Sanz Salvo, MD</td>
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<td>Alison D. Schecter, MD</td>
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<td>Samin K. Sharma, MD</td>
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<td>Donald A. Smith, MD</td>
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<td>Eric H. Stern, MD</td>
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<td>Roxana Sulica, MD</td>
<td>Assistant Professor</td>
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<tr>
<td>James R. Tunstead, PhD</td>
<td>Assistant Professor</td>
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<tr>
<td>David Vorcheheimer, MD</td>
<td>Associate Professor</td>
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### PART TIME

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<tr>
<td>Vivian M. Abascal, MD</td>
<td>Assistant Clinical Professor</td>
</tr>
<tr>
<td>Anthony Squire, MD</td>
<td>Associate Clinical Professor</td>
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### VOLUNTARY

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<th>Name</th>
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<tbody>
<tr>
<td>Pervez A. Ahmed, MD</td>
<td>Assistant Clinical Professor</td>
</tr>
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</table>

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*List of faculty as of December 31, 2006.
William I. Frumkin, MD
Assistant Clinical Professor

Alan Gass, MD,
Associate Clinical Professor

Gabriel Genkins, MD
Clinical Professor

Newsha Ghodsi, MD
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David Goldberg, MD
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Glenn Hamroff, MD
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David J. Harnick, MD
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Alan Hecht, MD
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Lawrence P. Hecker, MD
Clinical Instructor

Philip S. Irie, MD
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Timothy Jayasundera, MD
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Arthur J. Kennish, MD, PhD
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Sang Kim, MD
Assistant Clinical Professor

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Leslie A. Kuhn, MD
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Richard P. Lasser, MD
Clinical Professor

Johnny Lee, MD
Assistant Clinical Professor

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Kevin L. Martin, MD
Clinical Instructor

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Leonard M. Mattes, MD
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Jose Meller, MD
Clinical Professor

Peter Mercurio, MD
Clinical Instructor

Mark Meyer, MD, JD
Clinical Instructor

Niranjan K. Mittal, MBBS
Clinical Instructor

Marvin S. Mordkoff, MD
Clinical Instructor

Van-Hong Nguyen, MD
Clinical Instructor

Stephen A. Novick, MD
Assistant Clinical Professor

Stephen Passloff, MD
Clinical Instructor

Robert Pilchik, MD
Clinical Instructor

Michael Poon, MD
Associate Clinical Professor

Jeffrey D. Postman, MD
Assistant Clinical Professor

Robert M.P. Potenza, MD
Clinical Instructor

Leonard I. Raifman, MD
Clinical Instructor

Robert P. Reichstein, MD
Assistant Clinical Professor

Elliot J. Riegelhaupt, MD
Clinical Instructor

David An-Moo Rim, MD
Assistant Clinical Professor

Michael J. Robbins, MD
Associate Clinical Professor

Adam Rosenbluth, MD
Clinical Instructor

Howard C. Rothman, MD
Assistant Clinical Professor

John J. Rothschild, MD
Assistant Clinical Professor

Francesco Santoni-Rugiu, MD
Assistant Clinical Professor

William J. Schwartz, MD
Assistant Clinical Professor

Robert D. Seely, MD
Clinical Professor

Louis L. Shane, MD
Assistant Clinical Professor

Shahid Sheikh, MD
Assistant Clinical Professor

Ali A. Sherzoy, MD
Assistant Clinical Professor

Morris A. Shorofsky, MD
Assistant Clinical Professor

Herschel J. Sklaroff, MD
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Alan Slater, MD
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Leonard Stone, MD
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Javed Suleman, MBBS
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Howard Tarkin, MD
Assistant Clinical Professor

Patrick Thomas, MD
Assistant Clinical Professor

Allen H. Unger, MD
Assistant Clinical Professor

Judah Weinberger, MD, PhD
Assistant Clinical Professor

Harry Weinrauch, MD
Assistant Clinical Professor

Michael Weinrauch, MD
Assistant Clinical Professor

Arthur C. Weisenseel, MD
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Frank M. Weiser, MD
Assistant Clinical Professor
CARDIOLOGY CONT.

David H. Woldenberg, MD
Assistant Clinical Professor
Robert L. Wolf, MD
Assistant Clinical Professor
Mitchell Wolfson, MD
Clinical Instructor
Harvey Wolinsky, MD
Clinical Professor
Jerome S. Zacks, MD
Assistant Clinical Professor

CLINICAL IMMUNOLOGY

FULL TIME
Julie Magarian Blander, PhD
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Etsuko Abe, PhD
Associate Professor
Tracy Breen, MD
Assistant Professor
Christoph Buettner, MD, PhD
Assistant Professor
Terry F. Davies, MD
Professor
Edward Diamond, PhD
Assistant Professor
Eliza B. Geer, MD
Instructor
Karen Zier, PhD
Professor

VOLUNTARY
Aimee S. Altschul, MD
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Ellen M. Buchbinder, MD
Assistant Clinical Professor
Michael Chandler, MD
Assistant Clinical Professor
Ward Cunningham-Rundles, MD
Assistant Clinical Professor
Lynelle C. Granady, MD
Clinical Instructor
Songhui Ma, MD
Clinical Instructor

Anne L. Maitland, MD, PhD
Clinical Instructor
Laura J. Mechanic, MD
Assistant Clinical Professor
Jacqueline Proner, MD
Clinical Instructor
Steven M. Schnipper, MD
Clinical Instructor
Gary J. Stadtmueller, MD
Assistant Clinical Professor
Andrew M. Sustiel, MD
Clinical Instructor
Morton M. Teich, MD
Clinical Instructor
Steven J. Weiss, MD
Assistant Clinical Professor

ENDOCRINOLOGY, DIABETES, AND BONE DISEASE

FULL TIME
Etsuko Abe, PhD
Associate Professor
Richard S. Haber, MD
Professor
Rauf Latif, PhD
Assistant Professor
Derek LeRoith, MD, PhD
Professor
Alice C. Levine, MD
Associate Professor
Reigh-Yi Lin, PhD
Assistant Professor
Helen C. Looker, PhD
Assistant Professor
Dina E. Green, MD
Assistant Professor
Robert Matz, MD
Professor
Baljit Moonga, PhD
Associate Professor
Gopalan Rajendren, PhD
Assistant Professor
Li Sun, MD, PhD
Assistant Professor
Ying-jie Wu, PhD
Associate Professor
Shoshana Yakar, PhD
Assistant Professor
Robert T. Yanagisawa, MD
Assistant Professor
**FULL TIME**

Maria Abreu, MD  
Associate Professor  
Mark W. Babyatsky, MD  
Associate Professor  
Sita Chokhavatia, MD  
Associate Professor  
Jennifer A. Christie, MD  
Assistant Professor  
Masayuki Fukata, MD, PhD  
Assistant Professor  
Steven H. Itzkowitz, MD  
Professor  
Michelle K. Kim, MD  
Assistant Professor  
Lloyd Mayer, MD  
Professor  
Divyesh Sejpal, MD  
Assistant Professor  
Thomas A. Ullman, MD  
Assistant Professor  
Yuki Young, MD  
Instructor  

Rhoda H. Cobin, MD  
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Robert P. Fiedler, MD  
Associate Clinical Professor  
Walter Futterweit, MD  
Clinical Professor  
Samara B. Ginzburg, MD  
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Roger G. Mazlen, MD  
Clinical Instructor  
Jeffrey I. Mechanick, MD  
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Edward Merker, MD  
Associate Clinical Professor  
Stanley Mirsky, MD  
Associate Clinical Professor  

Elliot J. Rayfield, MD  
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Lester B. Salans, MD  
Clinical Professor  
Arnold Schonfeld, MD  
Associate Clinical Professor  
Robert L. Segal, MD  
Associate Clinical Professor  
David K. Sirota, MD  
Associate Clinical Professor  
Joshua S. Tannenbaum, MD  
Clinical Instructor  
Andrew J. Werner, MD  
Assistant Clinical Professor  

**PART TIME**

J. Lester Gabrilove, MD  
Professor  
Xin-hua Liu, MD, PhD  
Assistant Professor  

**GASTROENTEROLOGY**

**VOLUNTARY**

Donald A. Bergman, MD  
Clinical Professor  
Zachary T. Bloomgarden, MD  
Clinical Professor  
Neal G. Breit, MD  
Clinical Instructor  
Elise M. Brett, MD  
Assistant Clinical Professor  

**PART TIME**

David Chalfin, MD  
Clinical Instructor  
Anne Marie Fatone, PhD  
Instructor  
David B. Sachar, MD  
Clinical Professor  

**VOLUNTARY**

Saul Agus, MD  
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James Aisenberg, MD  
Associate Clinical Professor  
Michael Bayer, MD  
Clinical Instructor  
David H. Berman, MD  
Clinical Professor  
Anthony S. Borcich, MD  
Assistant Clinical Professor  
Peter J. Buchin, MD  
Assistant Clinical Professor  
Peter K. Chang, MD  
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Mark L. Chapman, MD  
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Lawrence B. Cohen, MD  
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Gerald Friedman, MD, PhD  
Clinical Professor  
James George, MD  
Clinical Instructor  
Charles D. Gerson, MD  
Clinical Professor  
Andrew M. Goldenberg, MD  
Clinical Instructor  
Eric S. Goldstein, MD  
Clinical Instructor  
Rakesh Gupta, MD  
Assistant Clinical Professor  
Hillel S. Hammerman, MD  
Assistant Clinical Professor  

Lawrence B. Cohen, MD  
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Assistant Clinical Professor
Jennifer A. Kent, MD
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Ian M. Kronish, MD
Assistant Professor
Jenny J. Lin, MD
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Corinna C. Manini, MD
Instructor
Devin M. Mann, MD
Assistant Professor
Brian A. Markoff, MD
Assistant Professor
Svetlana S. Matayev, MD
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Thomas G. McGinn, MD
Professor
Rachel Miller, MD
Instructor
Carlton R. Moore, MD
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Arik Olson, MD
Assistant Professor
Vinisha Patel, MD
Assistant Professor
Jonathan A. Ripp, MD
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Stephen K. Sigworth, MD
Assistant Professor
Natasha Singh, MD
Instructor
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David C. Thomas, MD
Associate Professor
Athanasia S. Vasiliadis, MD
Assistant Professor
Raluca Vrabie, MD
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Eva A. Waite, MD
Assistant Professor
Juan Wisnivesky, MD
Assistant Professor
Mark Woodward, PhD
Professor

PART TIME
Holly G. Atkinson, MD
Assistant Clinical Professor
Dolcine Dalmacy, MD
Clinical Instructor
Amy P. Frieman, MD
Assistant Clinical Professor
Deborah R. Korenstein, MD
Assistant Professor

VOLUNTARY
John Abroon, MD
Clinical Instructor
Edward Anselm, MD
Assistant Clinical Professor
Igor Z. Avagyan, MD
Clinical Instructor
Richard A. Bader, MD
Clinical Professor
Nancy R. Baron, MD
Clinical Instructor
Richard H. Bernstein, MD
Assistant Clinical Professor
Priti V. Borker, MBBS
Clinical Instructor
Carmine Caggiano, MD
Assistant Clinical Professor
Peter J. Charap, MD
Assistant Clinical Professor
John C. County, MD
Clinical Instructor
Carol A. Diamond, MD
Clinical Instructor
Maria D. Diaz, MD
Assistant Clinical Professor
Mary Jo DiMilia, MD
Assistant Clinical Professor
Tina A. Dobsevage, MD
Assistant Clinical Professor
Derek Enlander, MD
Clinical Instructor
Nina Fallick, MD
Clinical Instructor
Roya Fathollahi, MD
Assistant Clinical Professor
Nathaniel S. Feldman, MD
Assistant Clinical Professor
Martin M. Feuer, MD
Assistant Clinical Professor
Lisa C. Fishman, MD
Assistant Clinical Professor
Alice C. Furman, MD
Clinical Instructor
Herbert M. Gahr, MD
Clinical Instructor
Richard Hanover, MD, JD
Assistant Clinical Professor
Mitchel A. Kaplan, MD
Clinical Instructor
Glenn L. Kashan, MD
Clinical Instructor
Doron Z. Katz, MD
Clinical Instructor
Iris Kissous-Sherman, MD
Assistant Clinical Professor
Daniel P. Klein, MD
Clinical Instructor
Susan E. Klein, MD
Clinical Instructor
Eli M. Kleinman, MD
Clinical Instructor
Paul Knoepflmacher, MD
Clinical Instructor
Lisa Krenzel, MD
Assistant Clinical Professor
SaraAnne Levitan, MD
Clinical Instructor
Albert Levy, MD
Assistant Clinical Professor
William B. Lloyd, MD
Clinical Instructor
Vicki R. LoPachin, MD
Assistant Clinical Professor
Tariq K. Malik, MD
Associate Clinical Professor
Doreen A. Mensah, MD
Assistant Clinical Professor
Edward Mintz, MD
Assistant Clinical Professor
### HEMATOLOGY & MEDICAL ONCOLOGY

<table>
<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Joseph Mulvehill, MD</td>
<td>Assistant Clinical Professor</td>
</tr>
<tr>
<td>Annette Osher, MD</td>
<td>Clinical Instructor</td>
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<tr>
<td>Jill B. Ostrager, MD</td>
<td>Clinical Instructor</td>
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<td>Philip M. Paris, MD</td>
<td>Assistant Clinical Professor</td>
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<td>Vincent M. Pedre III, MD</td>
<td>Clinical Instructor</td>
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<td>Keri Peterson, MD</td>
<td>Clinical Instructor</td>
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<tr>
<td>Roger Platt, MD</td>
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<td>Ronald A. Primas, MD</td>
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<td>Yale Nemerson, MD</td>
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<td>Takao Ohnuma, MD</td>
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<td>Beatriz G. Pogo, MD</td>
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<td>Patricia A. Shi, MD</td>
<td>Assistant Professor</td>
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<td>Lewis R. Silverman, MD</td>
<td>Associate Professor</td>
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Morton Spivack, MD
Professor
David W. Sternberg, MD, PhD
Assistant Professor
Max W. Sung, MD
Associate Professor
Christopher E. Walsh, MD, PhD
Associate Professor
Peter J. Ward, PhD
Assistant Professor
Elisa Wurmbach, PhD
Assistant Professor
Liqiang Xi, MD
Assistant Professor
Yanping Yang, MD, PhD
Assistant Professor
Hailan Zhang, PhD
Assistant Professor
Weijia Zhang, PhD
Assistant Professor

PART TIME
Eileen Scigliano, MD
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Millicent Sutton, MD
Senior Faculty
Samuel Waxman, MD
Clinical Professor

VOLUNTARY
Avram Abramowitwz, MD
Clinical Instructor

Edward P. Ambinder, MD
Clinical Professor
Joseph D. Ament, MD
Assistant Clinical Professor
Avi Barbasch, MD
Associate Clinical Professor
Sushil Bhargwaj, MD
Associate Clinical Professor
Seymour M. Cohen, MD
Associate Clinical Professor
Barry S. Coller, MD
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Janet Cuttner, MD
Clinical Professor
Michael Diaz, MD
Assistant Clinical Professor
Colleen Edwards, MD
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Solomon Estren, MD
Clinical Professor
Arthur M. Figur, MD
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Stephen J. Frank, MD
Clinical Instructor
Anna M. Gattani, MD
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Arthur I. Goldberg, MD
Clinical Instructor
Michael A. Goldsmith, MD
Assistant Clinical Professor
Howard J. Greenberg, MD
Assistant Clinical Professor
Paul A.C. Greenberg, MD
Assistant Clinical Professor
Steven Gruenstein, MD
Associate Clinical Professor
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Robert J. Klafter, MD
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Brenda D. Panzera, MD
Clinical Instructor
Lynn H. Ratner, MD
Assistant Clinical Professor
Kevin Troy, MD
Associate Clinical Professor
James M. Vogel, MD
Associate Clinical Professor
Nathaniel Wisch, MD
Clinical Professor
Li-Teh Wu, MD
Assistant Clinical Professor

INFECTIOUS DISEASES

FULL TIME
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Assistant Professor
David P. Calfee, MD
Assistant Professor
Daniel S. Caplivski, MD
Assistant Professor
Theresa L. Chang, PhD
Assistant Professor
Benjamin K. Chen, MD, PhD
Assistant Professor
Alan J. Cohen, MD
Assistant Professor
Simon Daefler, MD, PhD
Assistant Professor
Stephanie H. Factor, MD
Assistant Professor
Daniel S. Fierer, MD
Assistant Professor
Dawn A. Fishbein, MD
Assistant Professor
Shirish S. Huprikar, MD
Assistant Professor
Marla J. Keller, MD
Assistant Professor
Mary E. Klotman, MD
Professor
Michael Lief, MD
Instructor
Richard MacKay, MD
Assistant Professor
INFECTIONIOUS DISEASES CONT.

Arevik Mosoian, PhD  
Assistant Professor

Lubbertus C.F. Mulder, PhD  
Assistant Professor

Michael Mullen, MD  
Senior Faculty

Valerie Parkas, MD  
Assistant Professor

Anu Raghunathan, PhD  
Instructor

Gabriela Rodriguez-Caprio, MD  
Assistant Professor

Nathalie C. Schulhof, MD  
Assistant Professor

Viviana A. Simon, MD, PhD  
Assistant Professor

Frances R. Wallach, MD  
Associate Professor

Bouchra Zerhouni-Layachi, PhD  
Assistant Professor

PART TIME  
Edward J. Bottone, PhD  
Professor

Eileen Chusid, PhD  
Assistant Professor

VOLUNTARY  
Jeffrey P. Gumprecht, MD  
Assistant Clinical Professor

Glenn S. Hammer, MD  
Assistant Clinical Professor

Burt Meyers, MD  
Clinical Professor

Eric P. Neibart, MD  
Assistant Clinical Professor

LIVER DISEASES

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Assistant Professor

Meena B. Bansal, MD  
Assistant Professor

Andrea D. Branch, PhD  
Associate Professor

Charissa Chang, MD  
Assistant Professor

Douglas Dieterich, MD  
Professor

Hussein El-Siesy, MD  
Assistant Professor

Francis J. Eng, PhD  
Assistant Professor

Scott L. Friedman, MD  
Professor

Priya Grewal, MD  
Assistant Professor

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Assistant Professor

Josep Llovet, MD  
Visiting Associate Professor

Paul Martin, MD  
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Natalia Nieto, PhD  
Assistant Professor

Joseph A. Odin, MD, PhD  
Assistant Professor

Kirsten Sadler-Edepli, PhD  
Assistant Professor

Thomas D. Schiano, MD  
Associate Professor

PART TIME  
Nancy Bach, MD  
Assistant Clinical Professor

VOLUNTARY  
Efsevia Albanis, MD  
Assistant Clinical Professor

Michael Bernstein, MD  
Assistant Clinical Professor

Franklin M. Klion, MD  
Clinical Professor

NEPHROLOGY

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Associate Professor

Kurt Amsler, PhD  
Associate Professor

Erwin P. Bottinger, MD  
Professor

Graciela De Boccardo, MD  
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Christian Faul, PhD  
Assistant Professor

Pengfei Gong, PhD  
Assistant Professor

Gabrielle L. Gusella, PhD  
Assistant Professor

Basil G. Hanss, PhD  
Assistant Professor

John Ci-Jiang He, MD, PhD  
Assistant Professor

Peter S. Heeger, MD  
Professor

Deborah Hyink, PhD  
Assistant Professor

Carlo Iomini, PhD  
Assistant Professor
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FULL TIME
N. Rashmi Aurora, MD
Assistant Professor
Sharon L. Camhi, MD
Assistant Professor
Christopher Cardozo, MD
Associate Professor
Michelle N. Gong, MD
Assistant Professor
Timothy Harkin, MD
Associate Professor
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Assistant Professor
Jose L. Walewski, PhD
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Assistant Clinical Professor
Gary E. Striker, MD
Research Professor
Joseph A. Vassalotti, MD
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VOLUNTARY
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A. Daniel Hauser, MD
Assistant Clinical Professor
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Assistant Clinical Professor
William T. Pordy, MD
Assistant Clinical Professor
FULL TIME
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Professor
Leslie Dubin Kerr, MD
Associate Professor

VOLUNTARY
Jay B. Adlersberg, MD
Assistant Clinical Professor
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Clinical Instructor
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Clinical Instructor
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