



THE PEOPLE & PARTNERSHIPS OF THE TISCH CANCER INSTITUTE

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## DEAR FRIENDS & COLLEAGUES,

I joined Mount Sinai in December 2007 to establish a cancer institute that would expand upon Mount Sinai's strengths as a world-class institution. In 2008, a generous gift from Trustee James S. Tisch and his wife, Meryll H. Tisch, created a significant endowment, enabling the naming of the Institute and demonstrating considerable confidence in the Institute's potential. Now, I am pleased to share this report on our progress.

Cancer research and care at Mount Sinai reflects a collaborative, multidisciplinary approach. "Bench-to-bedside" translation is possible because of the strong relationship between Mount Sinai School of Medicine and the Mount Sinai Hospital. Our investigators have the opportunity to work directly with a large and diverse patient population, creating exceptional conditions for translational research that is grounded in outstanding clinical care.

During my tenure as Director of The Tisch Cancer Institute, we've recruited more than 30 acclaimed physicians and researchers, specializing in basic research, clinical research, and population science. These recruits are now increasing our focus on solid tumor oncology; enhancing the existing robust program in hematological malignancies; advancing the study of cancer immunology and vaccine therapy; and creating a presence in cancer epidemiology.



**Steven J. Burakoff, MD, Director of  
The Tisch Cancer Institute**

The completion of the Leon and Norma Hess Center for Science and Medicine this year will enable the recruitment of up to 20 additional cancer researchers on two full research floors. Our outpatient facility, the Ruttenberg Treatment Center, will relocate to the Hess Center, where we will have two and a half times more clinical space for oncology practice and chemotherapy infusion, as well as expanded laboratory testing and an onsite pharmacy. The Hess building will augment our newest clinical facility, the Dubin Breast Center, which opened in 2011 and provides a 15,000-square-foot facility for state-of-the-art breast cancer care.

We are entering a new era of cancer treatment and research at Mount Sinai. We've developed robust cancer research programs in basic science, disease-focused research, and population science. We have been strengthening our genomics and molecular pathology programs; developing infrastructure for a top-notch cancer clinical-trials program; and supporting collaborative efforts by hosting interdisciplinary meetings and awarding developmental funds.

I hope you will enjoy learning about all of our endeavors. I encourage you to visit our website for more information about us: <http://www.tischcancerinstitute.org>.

Sincerely,  
Steven J. Burakoff, MD  
Director, The Tisch Cancer Institute,  
Lillian and Henry M. Stratton Professor  
of Cancer Medicine



E. Prekumar Reddy, PhD, left, in his lab

## STUART AARONSON + PREMKUMAR REDDY CANCER MECHANISMS & THERAPEUTICS

We now have a greater understanding than ever before of the causes of cancer—yet despite clearer understanding of this disease and an increased ability to diagnose and treat it at earlier and earlier stages, cancer still remains a challenge for effective treatment and cure. [Stuart Aaronson, MD](#) and [E. Prekumar Reddy, PhD](#), are the co-leaders of The Tisch Cancer Institute’s Cancer Mechanisms and Therapeutics (CMT) program, which aims to translate important advances in basic understanding of cancer into diagnostics and therapeutics that can be assessed in clinical trials. The program focuses on major research areas pertinent to cancer, including: oncogene signaling and dysregulated development; cell cycle control and genome integrity; tumor/stromal interactions; and experimental cancer therapeutics.



Stuart Aaronson, MD

In addition to his role as co-leader of the CMT program, Stuart Aaronson, MD, serves as chairman of Mount Sinai's Department of Oncological Sciences and Jane B. and Jack R. Aron Professor of Neoplastic Disease. Dr. Aaronson thinks we are in an incredibly exciting time in the field of cancer research with the discoveries of new targets for potential therapy. He says, "We can take our discoveries in the laboratory and build on them through targeting proteins with new molecules that can intervene and help us to better treat cancer in the future." One of his group's recent discoveries in Wnt signaling identified sarcoma as a tumor type in which this pathway is activated,

as detailed in the paper published in *Cancer Cell* in 2011, "High-frequency canonical Wnt activation in multiple sarcoma subtypes drives proliferation through a TCF/ $\beta$ -catenin target gene, CDC25A." Dr. Aaronson will work closely with Dr. Robert Maki, a clinical researcher who specializes in sarcoma. They are currently trying to devise a clinical modality to treat this particular target in sarcomas.

E. Prekumar Reddy, PhD, is director of the Experimental Cancer Therapeutics program at Mount Sinai. Dr. Reddy has worked in cancer research for the past four decades and is a pioneer in cancer biology, having made seminal discoveries that provided an increased understanding of the molecular basis of cancer. He has brought a number of promising drugs to clinical trials, including ones that treat myeloid leukemias; metastatic breast, ovarian, and pancreatic cancers; human mantle cell lymphomas; and ErbB2-positive breast cancers. Dr. Reddy says, "My research program is focused on elucidating the structure and function relationships of oncogenes, their role in cell cycle progression, tumorigenesis, and development." He believes "major breakthroughs in cancer treatment will occur only when we have a thorough understanding of how normal cells divide, and how tumor cells develop through a specific set of deleterious molecular events, and what the consequences of these mutations are on cellular signaling machinery."

Eric Schadt, PhD, Director of the Institute for Genomics and Multiscale Biology



**"Having an actual full-fledged cancer center in the context of a multispecialty hospital with really rich records on patients' care across all disciplines is a significant plus."**

**DR. ANDREW KASARSKIS**

## ERIC SCHADT + ANDREW KASARKIS INSTITUTE FOR GENOMICS & MULTISCALE BIOLOGY & THE TISCH CANCER INSTITUTE

Over the last decade, the scientific community has made massive strides in understanding human biology—and the epicenter of its work has been genomics. Now, the Institute for Genomics and Multiscale Biology at Mount Sinai is bringing a whole new mindset to how we connect genes to diseases and to therapeutics by linking genomics with multiscale biology. The term “multiscale biology” is a relatively new term, denoting the study of many complex layers of human-disease biology—from the submolecular level, to the molecular, cellular, organ, organism, all the way up to the community level, examining biology on both the smallest and the largest scales.

[Eric Schadt](#), PhD, is the director of the Institute for Genomics and Multiscale Biology at Mount Sinai and the Jean C. and James W. Crystal Professor of Genomics. He is considered to be one of the world’s foremost experts in computational biology. Upon joining Mount Sinai in 2011, Dr. Schadt recruited experts who could integrate the large amount of “omics” (such as genomics, proteomics, or metabolomics) data necessary to build predictive models of disease. Dr. Schadt and his team have forged partnerships with cancer investigators including Robert Maki, MD, sarcoma; Josep Llovet, MD, hepatocellular carcinoma; and Sundar Jagannath, MD, multiple myeloma, working with them to build predictive models that will ultimately provide information on cancer diagnosis and treatment strategies.



Andrew Kasarskis, PhD

[Andrew Kasarskis](#), PhD, vice chair of the Department of Genetics and Genomic Sciences and co-director of the Institute for Genomics and Multiscale Biology sees an advantage to being part of a healthcare institution that encompasses a full-scale, multispecialty hospital with an embedded cancer center. This provides him with access to many resources, including cancer disease tissue, “which really lends itself to genomic technologies and profiling of various kinds,” he says. He adds, “There are opportunities in the context of data mining to include our electronic medical records, evaluate what has or has not been effective in a clinical course, combine that with molecular information from various genomics-based data models, and consider more rapid trial designs over time. That’s the kind of thing where having an actual full-fledged cancer center in the context of a multispecialty hospital with really rich records on patients’ care across all disciplines is a significant plus.”

## GEORGE RAPTIS + ELISA PORT THE DUBIN BREAST CENTER

The Dubin Breast Center opened in 2011 and offers the latest and most-integrated approaches available for breast cancer treatment—including advanced breast imaging, medical oncology, surgery, breast reconstruction, radiation oncology, and pathology. Under the leadership of Directors [George Raptis](#), MD, MBA, and [Elisa Port](#), MD, FACS, the Dubin Breast Center is transforming the way breast cancer care is provided at Mount Sinai.

Like The Tisch Cancer Institute, the Dubin Breast Center was born of a mission to enhance excellence in patient care and facilitate interdisciplinary and translational research. “It wasn’t enough to create a wonderful place for women to be treated, we needed to enable and foster an environment of collaboration,” says Dr. Raptis. An example of this is a joint endeavor with Robert Desnick, MD, the dean for Genetics and Genomic Medicine and professor of Oncological Sciences and his team. “Together, we are investigating a gene that metabolizes Tamoxifen,” Dr. Raptis explains. “Our large patient volume enabled us to collect samples quickly and efficiently for a clinical study of new metabolites that are activated by Tamoxifen.” Published results from the study are already adding new insights into the treatment of breast cancer.

The seed localization technique is a cutting-edge method in use at the Dubin Breast Center. In patients undergoing lumpectomy for cancers that are small and cannot be felt in the breast, a tiny radioactive seed is guided into the breast and implanted at the site of the tumor several days in advance of surgery, allowing surgeons to better target and remove small breast tumors.

Its implementation involves significant coordination between a specialized team of breast surgeons and operating room personnel, radiologists, nuclear medicine physicians and pathologists. “Thankfully, with mammography and other advanced imaging techniques, we are identifying breast tumors earlier than ever—and with early detection, they are smaller than ever before,” says Dr. Port. “Seed localization is another way that we can provide a more targeted, patient-friendly approach, which means patients spend less time in the hospital, undergo less preparation, and experience minimal discomfort.”

## SERGIO LIRA + MIRIAM MERAD IMMUNOLOGY & IMMUNOTHERAPY

Chronic inflammation is a major risk factor for various cancers, and the mounting evidence suggesting that inflammation plays a significant and complex role in cancer progression has led to a number of studies assessing the efficacy of pro- and anti-inflammatory agents as treatments. The Tisch Cancer Institute’s Cancer Immunology and Immunotherapy (CII) Program, led by [Sergio Lira](#), MD, PhD, and [Miriam Merad](#), MD, PhD, aims to identify the role of inflammation in cancer development and progression, as well as identify novel and more potent immune targets for the treatment of cancer patients.

Sergio Lira, MD, PhD, Leona M. and Harry B. Helmsley Charitable Trust Professor of Immunology, is a world-renowned specialist in the biology of chemokines and their receptors. In addition to his role as co-leader of the Cancer Immunology and Immunotherapy Program, Dr. Lira is the co-director of the Immunology Institute at Mount Sinai. Dr. Lira believes we are now entering a new phase in understanding how the immune system interacts with and affects cancer. “We are seeing the first examples of very effective therapeutic intervention using immune molecules,” he says. “Much of the





George Raptis, MD, MBA, and Elisa Port, MD, FACS

**“It wasn’t enough to create a wonderful place for women to be treated, we needed to enable and foster an environment of collaboration.”**

**DR. GEORGE RAPTIS**



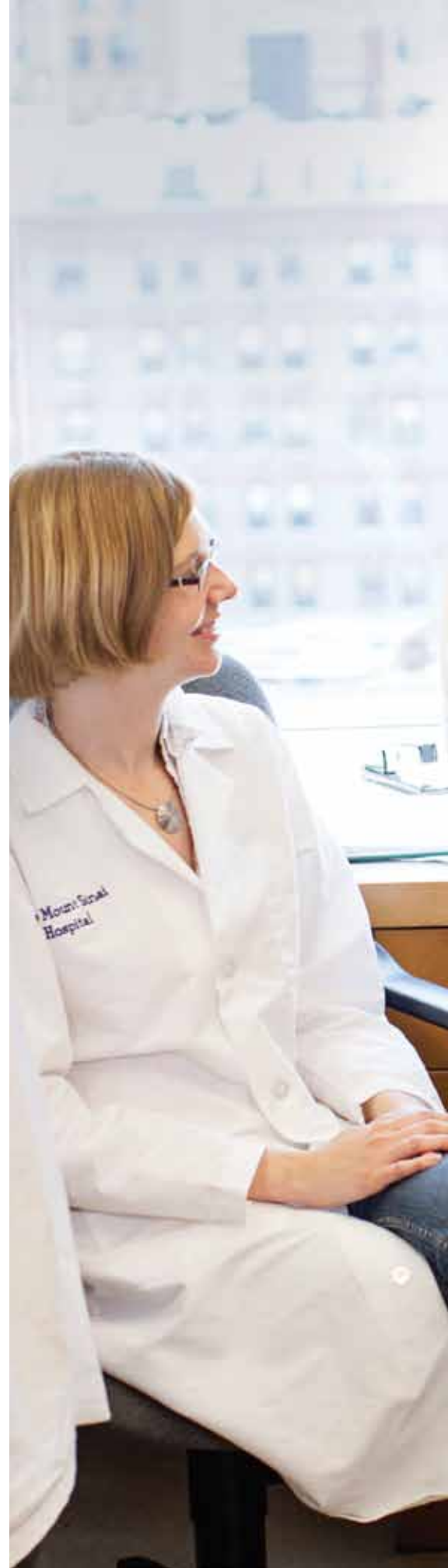
Miriam Merad, MD, PhD and Sergio Lira, MD, PhD

**“Knowledge gained from these studies is likely to promote development of better cancer therapies.”**

**DR. MIRIAM MERAD**

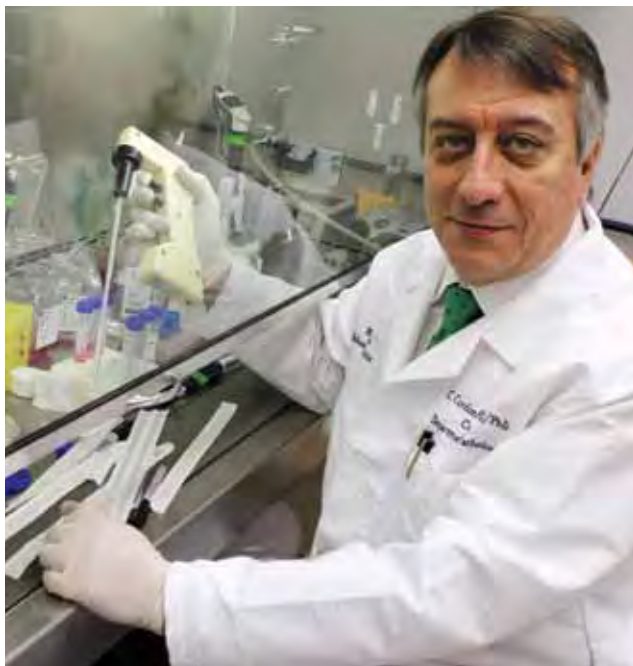
work done so far has focused on the characterization of the inflammatory cells and molecules involved in the process, but little is known about how and when these interactions occur. At Sinai, we are using precise genetic models to better understand the role of inflammatory cells and molecules in cancer development. Knowledge gained from these studies is likely to promote development of better cancer therapies.”

Miriam Merad, MD, PhD, is a celebrated expert in dendritic cell and macrophage biology. “Dendritic cells and macrophages capture tumor antigens, released following conventional or targeted therapy, and induce tumor antigen specific T cell immune responses that may prevent tumor relapses, therefore therapies that enhance immunogenic function of dendritic cells and macrophages should absolutely be part of tumor treatment,” says Dr. Merad. She sees her laboratory as a translational structure that will both ask questions to help understand disease and help develop new immune therapeutic modalities in cancer patients. In addition to her studies in solid tumors, Dr. Merad, together with the bone marrow transplant program at The Tisch Cancer Institute, also studies the potential of dendritic cell vaccines to reduce tumor relapse after allogeneic hematopoietic cell transplantation in patients with hematological malignancies.





Miriam Merad, MD, PhD, and her team  
in Dr. Merad's laboratory



Carlos Cordon-Cardo, MD, PhD

## CARLOS CORDON-CARDO PATHOLOGY

Mount Sinai's Lillian and Henry M. Stratton-Hans Popper Department of Pathology conducts more than 20,000 tests every day and generates over three quarters of a million slides a year for biopsies and cytology samples—a volume that is one of the highest in the country. With the appointment of [Carlos Cordon-Cardo](#), MD, PhD, as chair of the department and Irene Heinz Given and John LaPorte Given Professor of Pathology, pathology is being redefined at Mount Sinai.

Dr. Carlos Cordon-Cardo is a pioneer in oncologic molecular pathology and a distinguished leader in the mechanism of tumor suppression. At Mount Sinai, he is trying to position pathology at the center of patient management, “because, ultimately, patient management starts with a diagnosis,” says Dr. Cordon-Cardo.

“We are applying all of the advances in molecular biology, genetics, and bioinformatics,” explains Dr. Cordon-Cardo. “We want to manage the knowledge that emanates from the integration of clinical laboratory services, cytology, surgical, and molecular pathology—so we can put it all together and to better guide patient care. We think this will result in a new paradigm of health care.”

Dr. Cordon-Cardo is also positioning pathology at the center of translational research and, in this context, The Tisch Cancer Institute has access to the newly created biorepository that provides researchers with the human tissue samples needed to conduct part of their studies. He has put together a tissue utilization committee that includes basic scientists, clinicians, computational biologists, administration, and ethicists.

He adds, “We are very excited about the understanding of the disease process. For more than a century, one of the fathers of pathology has asked us to do cell-based pathology, and we have been doing mostly tissue-based, histo-pathology. If we want to further understand and treat cancer properly, we need to get to the root of the cause.”

## RONALD HOFFMAN + IHOR LEMISCHKA MYELOID MALIGNANCIES

At The Tisch Cancer Institute, the goal is not only to treat patients with hematological malignancies, but to implement a translational research program that develops new therapeutic options. The Myeloid Malignancies program focuses on myeloproliferative neoplasms (MPN) and myelodysplastic syndromes (MDS). The program is co-led by [Ronald Hoffman](#), MD, and [Ihor Lemischka](#), PhD. Dr. Hoffman, Albert A. and Vera G. List Professor of Medicine

oversees the clinical aspects of the program, and his research primarily concerns the study of MPNs and the biology of human hematopoietic stem cells (HSC) and progenitor cells (HPC). Dr. Lemischka's role in the program is focused on stem cell biology. His research interests have focused on the basic biology of both HSC and totipotent stem cells.

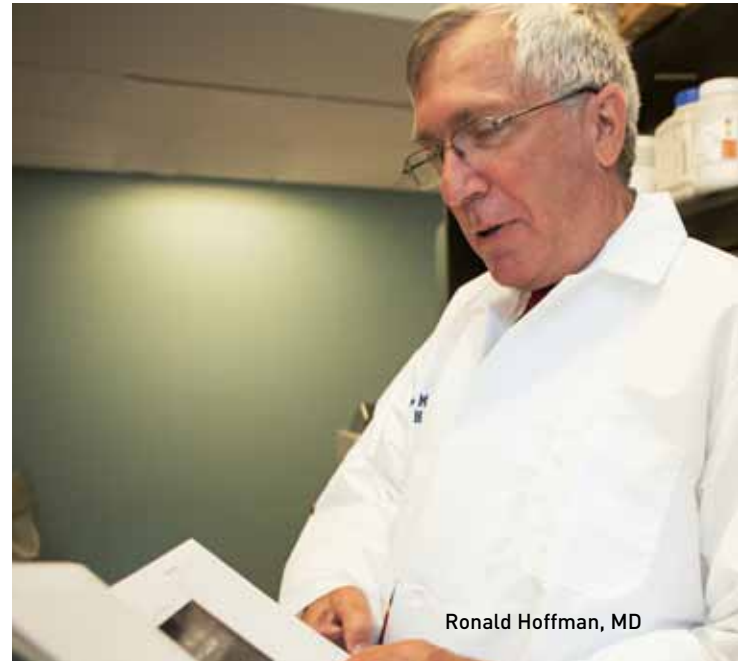
Dr. Hoffman joined Mount Sinai "because of the rich tradition and the huge clinical base of patients with myeloproliferative neoplasms. I thought it was an ideal environment to pursue experimental therapeutic trials."

**"There are a lot of interactions... but I think that putting together my expertise in stem cells and Dr. Hoffman's expertise in cancer is really exciting."**

**DR. IHOR LEMISCHKA**



Ihor Lemischka, PhD



Ronald Hoffman, MD



Dr. Hoffman is also the principal investigator of the MPD Consortium, a program now entering its seventh year of NCI funding. The consortium focuses on understanding the biological foundations of the myeloproliferative neoplasms and using that understanding to develop hypothesis-generated therapeutic trials to improve the therapy of these patients. The consortium involves 35 institutions, both in the United States and Europe.

Ihor Lemischka, PhD, Lillian and Henry M. Stratton Professorial Chair, is co-leader of the MMP program as well as the director of the Black Family Stem Cell Institute at Mount Sinai. Dr. Lemischka's research has him interacting with investigators across multiple areas. "We're now collaborating with Bruce Gelb's group, trying to model a juvenile myelomonocytic leukemia with induced pluripotent patient-specific stem cells that we make. Our group, which focuses on human ES and iPS reprogramming, is working with Ron Hoffman on trying to develop models of myelodysplasia and MPN. The core's also working with Prem Reddy on acute myelogenous leukemia." Dr. Lemischka says his own lab is also currently studying families with germline mutations in the p53 tumor suppressor gene, as these families are predisposed to many kinds of cancer.

**"My role is to help the patient navigate the different disciplines—and of course forging that collaboration and working relationship with the other specialties is critical to the outstanding care that patients receive here."**

**DR. DANIEL LABOW**



Daniel Labow, MD

## RANDALL HOLCOMBE + DANIEL LABOW GASTROINTESTINAL CANCERS

Multidisciplinary care is something that many cancer centers claim to offer, but it takes tremendous effort to fully execute. "True multidisciplinary care means that the practitioners from different disciplines communicate and work together for a patient's best interests, thereby providing better care than patients would receive by going to individual physicians in different specialties related to oncology," says [Randall Holcombe, MD](#). Dr. Holcombe oversees many aspects of patient care and research as deputy director of The Tisch Cancer Institute; director of Clinical Cancer Affairs for Mount Sinai Medical Center; medical director of the Ruttenberg Treatment Center (Mount Sinai's outpatient cancer facility); and director of Gastrointestinal (GI) Medical Oncology.

As director of the GI Medical Oncology program, Dr. Holcombe stresses the strength of the program's multifaceted approach to patient care and research. "We've been able to establish relationships with an extremely strong and nationally prominent program in inflammatory bowel disease, providing care for patients who develop GI cancers. In addition, inflammatory bowel disease is an inflammatory- or immune-

mediated condition, and one of the areas of focus within the cancer institute is to understand the immunology of cancer—both from the point of view of the development of cancer, prevention of cancer, and also to use immunological modalities for the treatment of cancer.”

The multidisciplinary GI team also includes GI specialists, radiation oncologists, and surgical oncologists such as [Daniel Labow](#), MD. Dr. Labow says, “My role is to help the patient navigate the different disciplines—and of course forging that collaboration

and working relationship with the other specialties is critical to the outstanding care that patients receive here.” Dr. Labow regularly collaborates with others on clinical trials, such as a pancreas cancer protocol that involves giving an immune booster after surgery, in addition to regular chemotherapy.



Randall Holcombe, MD



Robert Maki, MD, PhD



James Wittig, MD

## ROBERT MAKI + JAMES WITTIG SARCOMA

Sarcomas represent a family of 70 – 100 cancer diagnoses that arise from connective tissues, and collectively represent less than 1% of all cancers (but 15% of children’s cancers). The best patient outcomes depend on finding a physician who is familiar with these cancers, which can be challenging because of their relative rarity. Many community oncologists do not specialize in sarcomas and may not detect them. In the case of soft-tissue sarcomas, they may be mistaken for benign (noncancerous) soft-tissue tumors, which are much more common.

**Robert Maki**, MD, PhD, is the medical director for the Sarcoma Cancer Program in The Tisch Cancer Institute, Steven Ravitch Chair in Pediatric Hematology, and chief of the Jack Martin Fund Division of Pediatric Hematology/Oncology at Mount Sinai. He has interests in novel therapies and clinical trials for the treatment of soft-tissue and bone sarcomas as well as translational laboratory research involving these cancers. Dr. Maki joined Mount Sinai in 2011 after 15 years of practice in Boston and New York. He has found a great opportunity within The Tisch Cancer Institute for collaboration across multiple disciplines, noting, “The availability of both superb scientists and physicians in the full spectrum of medical specialties is a tremendous asset in providing the best of care now, as well as new options for medically complex patients.”

Another member of the team that treats sarcoma is **James Wittig**, MD. Dr. Wittig, chief of Orthopaedic Oncology and associate professor of Orthopaedic Surgery, specializes in limb-sparing surgery for pediatric and adult bone and soft-tissue sarcomas. He is one of the first surgeons in the country to implant a metallic expandable endoprosthesis to replace a leg bone. Recently, Dr. Wittig operated on an eight-year-old boy who needed a portion of his thigh bone removed



after sarcoma; Dr. Wittig replaced the bone with the new endoprosthesis. As the boy grows, Dr. Wittig will be able to use a magnet to extend the implant. This device is not only very durable, but “the fact that it expands under a magnet makes the treatment non-invasive,” says Dr. Wittig.

## WILLIAM OH CLINICAL RESEARCH

William Oh, MD has many responsibilities as the division chief for Hematology and Medical Oncology; Ezra M. Greenspan, MD, Professor in Clinical Cancer Care Therapeutics; and associate director of Clinical Research for The Tisch Cancer Institute. However, his most important task is to deliver the best, most compassionate care to patients.

Part of offering the best possible care to patients means continually incorporating research into clinical care. “Although we can help individual patients by being great physicians, we can help many more people by doing the research that’s going to improve outcomes for all,” says Dr. Oh. “Clinical research is very difficult to do because patients are individuals and their problems are complicated,” he adds. “Each patient is unique, and the same disease may manifest differently from patient to patient. So designing one research protocol that will apply to all patients is challenging.”

“There’s a tendency in large medical centers for people to be isolated and operate in a silo,” says Dr. Oh. “One of the things that is truly unique about Mount Sinai is that the medical school and the hospital are fully integrated. There really is no science that goes on here that doesn’t have immediate relevance to human beings. In a setting like this, it’s much easier to find collaborators who have a shared sense of mission to translate biological findings into new treatments.”



William Oh, MD

## SCOTT FRIEDMAN + JOSEP LLOVET HEPATOCELLULAR CARCINOMA

Hepatocellular Carcinoma (HCC) is the fastest rising cause of cancer mortality in the United States, and the third most common cause of cancer-related deaths worldwide, yet treatments are limited. The Tisch Cancer Institute has a unique, multidisciplinary program in hepatocellular carcinoma that explores all aspects of the disease—from the fundamental mechanisms of hepatocarcinogenesis to community screening for the diseases that give rise to HCC, extending to treatments of liver diseases and HCC. [Scott Friedman](#), MD, and [Josep Llovet](#), MD co-lead the HCC research program at The Tisch Cancer Institute, which is complemented by a robust clinical program in liver diseases.

Scott Friedman, MD, Irene and Dr. Arthur M. Fishberg Professor of Medicine, has been chief of the Division of Liver Diseases at Mount Sinai for 11 years, and in 2012 he was named dean for Therapeutic Discovery. In this role, he will be able to apply his experience in working with pharmaceutical and biotech companies to develop drugs on behalf of Mount Sinai—and for HCC in particular. Dr. Friedman refers to Josep Llovet as a wonderful partner. “Josep is probably the world leader in the design and implementation of clinical trials for hepatocellular carcinoma,” says Dr. Friedman. “He has extended that expertise to translational research in discovery of new pathways and the testing of new drugs in cell culture and animal models.” Dr. Friedman says he brings to the partnership “a solid grounding in basic research and understanding of molecular and cellular biology of injury and fibrosis.” He also emphasizes the outstanding strength of the hepatobiliary surgery program, led by Drs. Myron Schwartz and Sasan Roayaie.

Josep Llovet, MD, serves as director of the Liver Cancer Research Program at Mount Sinai. Dr. Llovet initiated and oversees the International HCC Consortium, a group that includes Dana-Farber-MIT (Boston),



“I also am partnering and overseeing the clinical activities, so that we’ve been able to assemble a program that literally goes from bench to bedside...”

DR. SCOTT FRIEDMAN



Eric Genden, MD

Hospital Clinic (Barcelona), and National Cancer Institute (Milan). He has devoted the last 15 years of his career to the study of molecular pathogenesis and treatment of liver cancer, and he is an unparalleled authority on the clinical development of novel treatments for HCC, having led the highly successful SHARP trial that established Sorafenib as the first molecularly targeted therapy approved for the treatment of HCC. He is currently the international PI of other pivotal trials, such as STORM and BRISK. Ongoing collaborations with other cancer institute members include a partnership with Eric Schadt, PhD, the director of the Institute for Genomics and Multiscale Biology, on a project that is a followup to a breakthrough study, “Gene expression in fixed tissues and outcome in hepatocellular carcinoma,” published in the *New England Journal of Medicine* in 2008. Dr. Llovet says, “Now with Eric Schadt, we’re profiling paraffin-embedded tissue for exome sequencing and RNA-seq, and, to our knowledge, this has never been done.”

## MARSHALL POSNER + ERIC GENDEN HEAD & NECK CANCERS

Head and neck cancers (HNC) are unlike any others. Because of the location of these tumors, there can be a devastating personal effect from treatment, leaving patients with significant, life-long difficulty eating, speaking, or socializing. Today, advanced treatments and follow-up care enable patients with head and neck cancers to not only live longer but also have a much better quality of life.

As the medical director of the Head and Neck Oncology Program, [Marshall Posner](#), MD, has seen progress in the treatment of head and neck cancers in recent years. “New technology for primary treatment modalities—surgery and radiation—have produced significant improvements,” he says. As we continue to learn about the biology of HNC over the next decade, Dr. Posner expects we will see a host of new vaccines,



Marshall Posner, MD

immune modulators, and other targeted therapies, which may actually allow for the elimination of chemotherapy or radiotherapy as treatments for the population of intermediate- and advanced-stage patients with certain cancers, such as HPV.

For [Eric Genden](#), MD, FACS, chairman of the Department of Otolaryngology, restoring patients to a full life after head and neck cancer is paramount. Dr. Genden spearheaded the establishment of Mount Sinai's Multidisciplinary Center for Head and Neck and Thyroid Cancer, bringing together surgeons, clinicians, and staff from a wide range of specialties. The program now includes 35 team members from 11 different specialties at Mount Sinai. Along with Dr. Posner, Dr. Genden has taken the position that the program will take a "Patient First" primary approach.

"Our program coordinator consults with patients before they come to the center to identify who's at high risk for complications from surgery or treatment. The coordinator then determines which will be necessary when they come to the center," adds Dr. Genden. "By identifying the high-risk patients early, we can institute aggressive therapy aimed at their unique needs."

#### **CANCER CLINICAL TRIALS OFFICE**

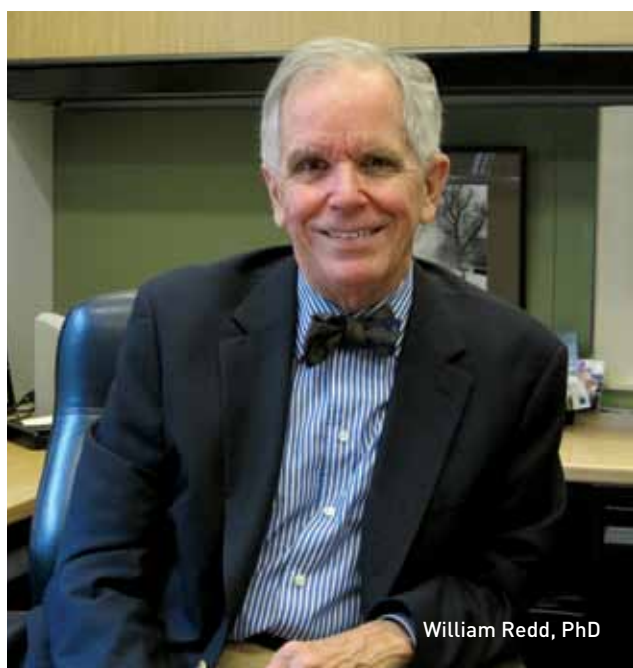
[Dr. Posner](#) also serves as director of the Clinical Trials Office at The Tisch Cancer Institute. As such, he is an advocate for integrating clinical trials into patient care. "I think one of the roles of research is to offer hope and improved care to patients," adds Dr. Posner. "It's part of our obligation as cancer doctors to move the field of cancer treatment forward in a safe and effective environment."



Raja Flores, MD

**“You will get the best lung cancer care anywhere on the planet at Mount Sinai right now.”**

**DR. RAJA FLORES**



William Redd, PhD



Paolo Boffetta, MD, MPH

## RAJA FLORES THORACIC ONCOLOGY

Raja Flores, MD, is a world-renowned surgeon with expertise in mesothelioma, lung cancer, and esophageal cancer. In 2010, he joined Mount Sinai as the chief of Thoracic Surgery, Steven and Ann Ames Professor in Thoracic Surgery, and director of the Thoracic Oncology program. He is known for his landmark study on the surgical treatment of mesothelioma, and he also helped pioneer the use of intraoperative chemotherapy for this disease.

Mount Sinai's integrated, multidisciplinary lung cancer program is "the best lung and esophageal team in the country," according to Dr. Flores. "We have pioneers in every field," he says, including Claudia Henschke, MD, and David Yankelevitz, MD, in screening; Dr. Flores in minimally invasive surgery; Kenneth Rosenzweig, MD, a pioneer in the use of radiation treatment for lung cancer and mesothelioma; Charles Powell, MD, in pulmonary medicine; and Paolo Boffetta, MD, MPH, one of the premier lung cancer epidemiologists. "You will get the best lung cancer care anywhere on the planet at Mount Sinai right now," says Dr. Flores. Mount Sinai also has a strong program in esophageal cancer, with faculty such as Sharmila Anandasabapathy, MD, using endoscopic techniques to treat the disease.

For patients with lung cancer, esophageal cancer, mesothelioma, thymoma, and sarcoma, the multi-specialty team offers endoscopy, surgery (with one of the lowest complication rates in the United States), chemotherapy, and radiation therapy. Mount Sinai researchers look at the causes of cancers such as mesothelioma, with programs like the World Trade Center Health Program (which provides examinations and treatment to first responders at the World Trade Center on September 11, 2001) and the Irving J. Selikoff Center for Occupational and Environmental Medicine

(COEM). The thoracic oncology team also educates the community about topics such as lung cancer screening, since "right now that is leading to more cures than anything else," according to Dr. Flores.

## PAOLO BOFFETTA + WILLIAM REDD CANCER EPIDEMIOLOGY, PREVENTION & CONTROL

In an ongoing effort to truly understand the epidemiology of cancer, Paolo Boffetta, MD, MPH, engages in many large-scale, international studies. After two decades as a leading cancer epidemiologist in Europe, he joined The Tisch Cancer Institute as associate director of Population Science because he wanted to be able to interact and collaborate with colleagues across the medical field—something only possible in a place like Mount Sinai. He was recently given another leading role at Mount Sinai, that of Director of the Institute for Translational Epidemiology, as well as the Bludorn Professor of International Community Medicine.

Dr. Boffetta believes that a diverse cancer epidemiology program is necessary in order to benefit a diverse patient population. "From the point of view of epidemiology and prevention in general, I think one needs to exploit diversity in human populations," he says. "Identifying different risk factors and ways to treat cancer differently is best done through collaborations." Dr. Boffetta is involved in a number of bilateral collaborations, where Mount Sinai collaborates with one other country—places as diverse as Chile, China, India, and Iran—studying diseases such as cervical cancer, stomach cancer, lung cancer, esophageal cancer, and others.



Luis Isola, MD

On a local scale, Mount Sinai's location on the border of New York City's East and Central Harlem neighborhoods (some of the most diverse areas in the city) also creates unique opportunities to engage with our community. [William Redd](#), PhD, is the leader of The Tisch Cancer Institute's Cancer Prevention and Control Program. The program is devoted to improving the lives of people affected by cancer through research, training, and community outreach. "My mission is to understand problems in cancer prevention, screening, treatment, and survivorship—and to develop effective protocols and testing that will have a positive impact on patients," says Dr. Redd. "We are currently looking at adjustment in survivors and anxiety disorders," says Dr. Redd. "We also just received NIH funding for an exciting and novel approach to treating cancer fatigue using light exposure."

## LUIS ISOLA BONE MARROW TRANSPLANTATION

[Luis Isola](#), MD, is director of Mount Sinai's Bone Marrow Transplant (BMT) program. "I've been at Mount Sinai for more than 25 years," says Dr. Isola, "and since the establishment of The Tisch Cancer Institute, we've taken a quantum leap in the growth of our transplant program. Our clinical operations have gone from about 120 to close to 200 transplants in the last three years; our research portfolio has essentially doubled in the course of two years; and our clinical trials operation has fully matured."

The program is celebrating its twentieth birthday this year and is the second-oldest and second-largest in New York City. "We performed the first mismatched transplantation using non-ablative conditioning and are one of only a few programs in the country with an FDA-approved protocol for haplo-mismatched transplantation, which is particularly important for minority populations where finding matched unrelated donors is difficult," says Dr. Isola.

The BMT program has a full portfolio of research, looking at the different modalities of transplantation; treatments for infectious complications and graft vs. host disease; and participation in the bone marrow clinical trials network, which is the largest group for BMT research. Mount Sinai is also a national marrow donor transplant center, peripheral blood stem cell collection center, and bone marrow collection center.



**“We are uniquely positioned to improve knowledge above and beyond just giving a drug to a patient and seeing the outcome—we can actually understand the biology of the disease, and we have the strength at Mt. Sinai to accomplish this goal.”**

**DR. SUNDAR JAGANNATH**

## SUNDAR JAGANNATH MULTIPLE MYELOMA PROGRAM

Multiple myeloma, although not a curable disease, is a treatable cancer. In recent years, the life expectancy and quality of life for those with this cancer has steadily improved, and a number of new treatment options have transformed multiple myeloma from a terminal disease into a chronic one that can be managed on a long-term basis.

Under the leadership of [Sundar Jagannath, MD](#), Mount Sinai now houses the largest multiple-myeloma program in New York City. The program takes a multidisciplinary team approach to treatment, involving the Bone Marrow Transplantation service, and the Departments of Cardiology, Rheumatology, Nephrology, Pathology, and the Institute of Genomics and Multiscale Biology, among others.

Clinical trials are also a critical component of the program. Two clinical trials are now studying the use of vaccines in different patient populations—those with premultiple myeloma, and those whose disease is in remission. Dr. Jagannath is working with Hearn Cho, MD, on a vaccine protocol, MAGE-A3 Protein + AS15

as Consolidation for Multiple Myeloma Patients Undergoing Autologous Stem Cell Transplantation. This vaccine is only available at four centers in the country.

Mount Sinai also participates in multicenter research initiatives in conjunction with the Multiple Myeloma Research Foundation. One of the studies will enroll at least 1,000 newly diagnosed patients who have not yet undergone therapy. As part of this study, a complete genomic sequencing will be conducted on these patients, who will then be followed for the next five years. This will tie clinical outcomes to molecular signatures, which will help researchers develop drugs targeted toward specific genes and tailor therapies according to the patient’s need.

Dr. Jagannath says, “We are uniquely positioned to improve knowledge above and beyond just giving a drug to a patient and seeing the outcome—we can actually understand the biology of the disease, and we have the strength at Mt. Sinai to accomplish this goal.”

Sundar Jagannath, MD



## KENNETH ROSENZWEIG RADIATION ONCOLOGY

**Kenneth Rosenzweig, MD**, joined Mount Sinai in 2010 as chair of the Department of Radiation Oncology. Dr. Rosenzweig is a pioneer in the development of innovative methods for delivering precise doses of radiation to lung tumors during key points in the respiration cycle, enabling physicians to safely increase the radiation dose, shorten treatment, and spare healthy tissue. He has also been the principal investigator on a radiation-dose-escalation study that established the maximum tolerated dose of radiation that can be safely delivered to lung tumors.

The radiation oncology department's primary goal is giving the highest quality of patient care in as compassionate a manner as possible. By using advanced radiation techniques, such as stereotactic body radiation therapy, "It allows us to give a much higher dose of radiation more accurately—sparing normal tissue—and allows us to do higher doses per fraction, which improves patient outcome," says Dr. Rosenzweig.

Since joining Mount Sinai, Dr. Rosenzweig has collaborated with others within his primary area of interest: thoracic malignancies. Dr. Rosenzweig has been working with Raja Flores, MD (whom he worked with previously for a decade); Charles Powell, MD, the head of pulmonology; and Claudia Henschke, MD, and David Yankelevitz, MD, in lung cancer screening. Dr. Rosenzweig is also excited about starting new collaborations in hepatocellular carcinoma, as liver cancer has been traditionally difficult to treat with radiation.



Kenneth Rosenzweig, MD

## PHILIP FRIEDLANDER + YVONNE SAENGER SKIN CANCER

**Philip Friedlander, MD, PhD**, joined The Tisch Cancer Institute in 2011 because of the institute's "strong commitment to develop a leading, first-class melanoma program that's multidisciplinary," he says.

As medical director of the Melanoma Medical Oncology Program, Dr. Friedlander has developed a program that combines the latest in scientific research with the highest standard of care for patients. Dr. Friedlander has been the principal investigator in several high profile studies to test novel therapeutic approaches for melanoma, and he has been able to offer patients at Mount Sinai the opportunity to participate



Philip Friedlander, MD, PhD and Yvonne Saenger, MD

in several clinical trials—including an expanded access protocol with a b-raf inhibitor called Vemurafenib, which was recently FDA approved for the treatment of advanced melanoma. Another trial Dr. Friedlander opened at Mount Sinai was with a novel immunotherapy called CT-011 that targets a protein, PDL1, that plays a very important role in regulating the ability of the immune system to recognize a melanoma.

The opportunity to build a strong melanoma research program was what also brought [Yvonne Saenger, MD](#), to The Tisch Cancer Institute. “What resonated most with me,” says Dr. Saenger, “was the chance to collaborate with renowned physicians and scientists on ground-breaking clinical research, as well as patient care.” Dr. Saenger has brought high-profile trials to Mount Sinai, including a trial of an oncolytic virus injected into melanoma tumors. Dr. Saenger has developed a novel genomics-based biomarker in melanoma that will give early stage patients information about their personal risk. She is working with Dr. Eric Schadt’s team to define key driver genes

**“What resonated most with me was the chance to collaborate with renowned physicians and scientists on ground-breaking clinical research as well as patient care.”**

**DR. YVONNE SAENGER**

in melanoma progression and to validate these genes in mouse models. “I think we will then be able to use this knowledge to assess how patients are responding to immune therapies,” adds Dr. Saenger. “This kind of science is really a game changer in the practice of medicine.”

WITH THE LEON AND NORMA HESS CENTER FOR SCIENCE AND MEDICINE  
COMES HUGE ADDITIONS TO THE TISCH CANCER INSTITUTE

50,000 +

square feet of space for the Ruttenberg Treatment Center

54 + 48 +

infusion suites

exam rooms

42,000 + 25

square feet of Tisch Cancer Institute laboratory space

Additional cancer  
researchers

## OUR FUTURE

### **LEON AND NORMA HESS CENTER FOR SCIENCE AND MEDICINE**

Mount Sinai's new Leon and Norma Hess Center for Science and Medicine, opening in 2012, will provide a new home for many of The Tisch Cancer Institute's researchers and clinicians. Comprising 500,000 square feet, the Hess Center will augment Mount Sinai's overall research capacity by 30% and essentially double the amount of space for the cancer institute. Cancer research and treatment will play a prominent role in the new space, including two floors of dedicated cancer laboratory research space, and two floors of dedicated clinical space.

The expanded Ruttenberg Cancer Treatment Center (our outpatient treatment facility) will more than double in size to 50,000 square feet of space providing 54 infusion suites, 48 exam rooms, expanded laboratory testing, and an onsite pharmacy—including a research pharmacy. Radiation Oncology, Cancer Radiology, and the Translational and Molecular Imaging Institute will also be housed in the new building, allowing for state-of-the-art equipment and technicians as well as a seamless diagnostic and treatment experience for patients.

Floors five and six will be dedicated to laboratory cancer research space, creating an additional 42,000 square feet of Tisch Cancer Institute laboratory space and providing room for the recruitment of approximately 20 additional cancer scientists. In addition to laboratory space, the building will allow for the expansion and development of additional and expanded shared resources that will be used by Cancer Institute members.

### **CLINICAL TRIALS**

A linchpin of translational research is the development of novel investigator-initiated clinical trials that use a "bench-to-bedside" approach. The Tisch Cancer Institute and The Mount Sinai School of Medicine are committed to facilitating such research by supporting pilot, phase I, and phase II trials developed at Mount Sinai which would otherwise be unfunded or underfunded by traditional sources.

### **RECRUITMENT**

Since The Tisch Cancer Institute has been established, we've recruited more than 30 new faculty. With the opening of the Center for Science and Medicine, we anticipate recruiting an additional 25 cancer specialists over the next two to three years.

**THE TISCH CANCER INSTITUTE  
SENIOR LEADERSHIP**

*Director*

Steven J. Burakoff, MD

*Deputy and Associate Director,*

*Clinical Affairs*

Randall Holcombe, MD

*Executive Administrator*

Sharon Mias, MPA

*Associate Director,*

*Basic Research*

Stuart Aaronson, MD

*Associate Director,*

*Clinical Research*

William K. Oh, MD

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*Population Science*

Paolo Boffetta, MD, MPH

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*Clinical Cores*

Marshall Posner, MD

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*Cancer Immunology and  
Immunotherapy*

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Miriam Merad, MD, PhD

*Myeloid Malignancies*

Ronald Hoffman, MD

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*Hepatocellular Carcinoma*

Scott Friedman, MD

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*Cancer Prevention and Control*

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“CANCER RESEARCH AND CARE AT MOUNT SINAI REFLECTS A COLLABORATIVE, MULTIDISCIPLINARY APPROACH. ‘BENCH-TO-BEDSIDE’ TRANSLATION IS POSSIBLE BECAUSE OF THE STRONG RELATIONSHIP BETWEEN MOUNT SINAI SCHOOL OF MEDICINE AND THE MOUNT SINAI HOSPITAL. OUR INVESTIGATORS HAVE THE OPPORTUNITY TO WORK DIRECTLY WITH A LARGE AND DIVERSE PATIENT POPULATION, CREATING EXCEPTIONAL CONDITIONS FOR TRANSLATIONAL RESEARCH THAT IS GROUNDED IN OUTSTANDING CLINICAL CARE.”

Steven J. Burakoff, MD  
Director, The Tisch Cancer Institute