Mount Sinai
MSSM
MOUNT SINAI SCHOOL OF MEDICINE

Dean's Quarterly

FALL 2012

ACCELERATING SCIENCE — ADVANCING MEDICINE

Modern Medicine Needs an Injection of the Entrepreneurial Spirit

"The most compelling reason for most people to buy a computer for the home will be to link it to a nationwide communications network. We're just in the beginning stages of what will be a truly remarkable breakthrough for most people—as remarkable as the telephone."

— Steve Jobs, Co-Founder of Apple, Inc.

When Steve Jobs made this statement in a 1985 interview, he was articulating a vision that few people in the world could have seen at that time. The entrepreneurial spirit that brought us personal computing would soon become synonymous with Silicon Valley, upending the time-honored ways in which we shop, do business, access media, and communicate. Yet, it would leave medicine largely untouched.

Health care is traditionally a very conservative field. Lives hang in the balance of all we do, so we must proceed with caution when introducing new surgical techniques, pharmacological agents, or different ways of doing business. Today, this risk-averse culture has become a real detriment when it comes to applying mobile and imaging technologies, Big Data, and social networking tools to modern medicine.

These advancements could usher in a new era of precision medicine, one that could predict and prevent disease, and enable physicians to select for patients the most effective therapeutics with the most minimal side effects. Everyday technologies could also allow patients to monitor and transmit to their doctors key health indicators such as oxygen concentration, blood pressure, respiratory rate, heart rhythm, and brain waves. In so doing, patients could reduce their risk of developing or exacerbating chronic conditions, as well as some heritable diseases.[1]

To get there, medicine needs to embrace the entrepreneurial spirit that realized revolutionary ideas such as Facebook, and enabled the digital connection of nearly a billion users worldwide.

With the goal of becoming the Silicon Valley of medical schools, Mount Sinai has made strategic investments in the infrastructure and creative intelligence needed to harness the power of modern technologies and use them to challenge the current culture of medicine. This issue of *Dean's Quarterly* outlines our vision, strategy, and accomplishments thus far, and I look forward to updating you on more progress soon.

Dennis S. Charney, MD, is the Anne and Joel Ehrenkranz Dean of Mount Sinai School of Medicine and the Executive Vice President for Academic Affairs of The Mount Sinai Medical Center.

To learn more, visit www.mountsinai.org/Charney

1. Topol, E. *The Creative Destruction of Medicine: How the Digital Revolution Will Create Better Health Care.* New York, N.Y. Basic Books; 2012

INSIDE THIS ISSUE

FRONTIERS IN EDUCATION

Re-Examining Admissions Criteria for Medical School

Educators at Mount Sinai School of Medicine have found that incoming medical students who major in the humanities without taking traditional premed courses, or the Medical College Admission Test (MCAT), perform as well as, and in some instances better than, their peers in medical school who have taken all of the premed requirements.

The findings are based on data Mount Sinai has compiled for 25 years, which track students accepted into its unique Humanities and Medicine Early Assurance Program (HuMed), launched in 1987 by Nathan Kase, MD, who was Dean of the School of Medicine at the time. The HuMed students—who now comprise a quarter of each class—are accepted as college sophomores with humanities majors. They are required to take two semesters of chemistry and biology, the labs associated with both, and a semester of physics and organic chemistry.

They are not, however, required to take additional science and math courses, or the MCATs. Between their junior and senior years of college, they must attend an eight-week Summer Program at Mount Sinai, where they experience clinical rotations, participate in weekly ethics discussions, and are exposed to health policy, public health, and translational science.

For the past six years, almost half of the HuMed students have ranked in the top 25 percent of their class, according to David Muller, MD, Marietta and Charles C. Morchand Chair in Medical Education and Dean for Medical Education. These students are highly represented in their clerkship honors, selection to Alpha Omega Alpha, the Gold Humanism Honor Society, scholarly year research participation, first author publications, and community service.

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Innovative Discoveries in the Pipeline

Six promising new approaches to diagnosis and therapy build upon Mount Sinai School of Medicine's commitment to innovative translational research.

Acid Ceramidase

Edward H. Schuchman, PhD, Genetic Disease Foundation—Francis Crick Professor of Genetics and Genomic Sciences, and Vice Chair for Research, has found that in a variety of diseases and cell types, ceramide, an extremely insoluble lipid, disrupts the plasma membrane of cells, making them susceptible to apoptosis and infection. The Schuchman lab is developing a recombinant enzyme—acid ceramidase—to treat several of these diseases, including cystic fibrosis, to improve in vitro fertilization, and to use for cell-based therapy for cartilage repair. This follows the lab's successful development of enzyme replacement therapy for Niemann-Pick disease, which is beginning Phase II clinical trials.

Allergy Diagnostic Development

Hugh Sampson, MD, has developed a blood test that more accurately diagnoses food allergic patients, allows researchers to differentiate between those patients who may outgrow their allergies and those who will not, and may predict the severity of allergic reactions following allergen ingestion. The traditional approach to diagnosing patients with food allergies is to periodically give them foods that are believed to be causing symptoms and monitor them for an extended period of time. Dr. Sampson is Dean for Translational Biomedical Research, Director of the Jaffe Food Allergy Institute, and the Kurt Hirschhorn Professor of Pediatrics.

Kinase Inhibitor Platform

Ross L. Cagan, PhD, and his lab are pioneering a new approach to cancer treatment in which they identify kinase inhibitors that hit multiple targets—known as polypharmacology—as opposed to traditional methods that seek highly specific inhibitors. This has been the mainstay of oncology research for the last decade. Dr. Cagan believes the new approach is safer, more efficacious, and will decrease the time it takes to identify and make new drugs. Dr. Cagan is Associate Dean of the Mount Sinai Graduate School of Biological Sciences, Professor of Developmental and Regenerative Biology, Oncological Sciences, and Ophthalmology.

Onconova

E. Premkumar Reddy, PhD, Professor of Oncological Sciences, and Professor of Structural and Chemical Biology, and his lab have identified compounds that inhibit two oncogenic pathways (abl and PI3K). These compounds promise to be first-in-class treatments for cancers that become resistant to GLEEVEC® and second-generation abl inhibitors.

Oral treatment for Fabry and Pompe diseases

Jian-Qiang Fan, PhD, an Assistant Professor in the Department of Human Genetics, discovered that small molecules can help stabilize lysosomal enzymes, thereby improving their ability to degrade their substrates. This technology has been licensed to Amicus Therapeutics, in Cranbury, N.J. It is now in Phase III trials in patients with Fabry's disease, and Phase II trials in patients with Pompe's disease.

Universal Flu Vaccine

Research by Peter Palese, PhD, and Adolfo García-Sastre, PhD, has shown that patients infected with pandemic influenza virus are subsequently protected against non-pandemic seasonal virus. Their labs have created vaccines that mimic this protective effect. Dr. Palese is Professor and Chair of Microbiology, and Professor of Medicine, Infectious Diseases, at Mount Sinai School of Medicine. Dr. García-Sastre, is Director of the Global Health and Emerging Pathogens Institute, and Professor of Microbiology, and (Medicine) Infectious Diseases at Mount Sinai School of Medicine.

Re-Examining Admissions Criteria for Medical School

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Their accomplishments, in fact, have led Mount Sinai's educators to rethink the entry requirements for all medical students, and consider modeling their acceptance criteria on the HuMed program, making it the norm rather than the exception.

The inherent value of a broad and deep undergraduate education encourages critical thinking and self-directed learning, skills that help create the kinds of physicians and scientists we will need in the 21st century, says Dr. Muller. "Onerous undergraduate requirements result in few students being grounded in molecular biology, genetics, biostatistics, bioethics, social justice, and heath policy," he says.

Opening Mount Sinai's doors to more well-rounded, educationally diverse students, Dr. Muller says, would allow in more women and minorities, and decrease "premed syndrome" among grades-obsessed students who partake in a dehumanizing process that does not prepare them to become compassionate healers and thoughtful, innovative researchers.

The quick pace of scientific and technological advancements requires physicians to continue to learn long after they have graduated from medical school, says Dr. Muller. The best physicians and scientists will be the life-long learners who possess analytical and critical thinking skills, not necessarily those who excel at memorization, or test-taking.

David Muller, MD

Mount Sinai's Supercomputer Ushers in a New Era

Mount Sinai School of Medicine recently unveiled its new supercomputer that is helping researchers unlock the intricate mechanisms that lead to human diseases, and hasten the discovery of treatments for them. The computer, named Minerva, after the Roman goddess of wisdom and medicine, was custom-built by Patricia Kovatch, the school's first Associate Dean for Scientific Computing.

Minerva provides 64 million hours of computation per year. It has 7,680 processing cores, a peak speed of 70,000 gigaflops, and 30 terabytes of random access memory, making it one of the nation's highest-performing computers in academic medicine.

"With its tremendous strength and speed, Minerva enables scientists to analyze and manipulate large data sets by running longer, more complex simulations," says Ms. Kovatch. "This state-of-the-art technology will empower Mount Sinai's researchers to expand the boundaries of their scholarly inquiry." The computer's ability to provide researchers with real-time computation of advanced molecular models and a quick analysis of genomic patterns will help Mount Sinai usher in a new era of personalized and precision medicine. Eric Schadt, PhD, Director of the Institute for Genomics and Multiscale Biology, and his researchers have been using Minerva extensively in their work.

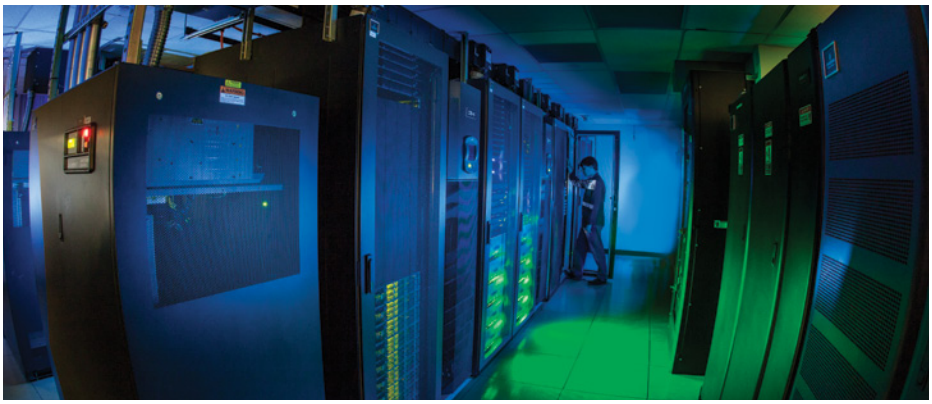
Computing power comparable to Minerva's is available only at the most advanced research centers, says Dennis S. Charney, MD, Anne and Joel Ehrenkranz Dean of Mount Sinai School of Medicine and Executive Vice President for Academic Affairs of The Mount Sinai Medical Center. He adds, "The tight integration of Mount Sinai School of Medicine and The Mount Sinai Hospital means that research can be translated here into patient care more quickly and efficiently than virtually any place else."

Minerva will work in conjunction with Mount Sinai's Data Warehouse, which consists of clinical, operational, and financial information collected through de-identified electronic medical records (EMR) from The Mount Sinai Hospital and Faculty Practice Associates. The warehouse contains nearly 2 billion facts, and data from more than 3 million ethnically and racially diverse patients dating back to 2003. (It is compliant with HIPAA, New York State privacy and security regulations, and Mount Sinai's Program for the Protection of Human Subjects.)

In addition, Minerva is being used to analyze data from the Mount Sinai Biobank, with its enrollment of more than 21,000 individuals who have agreed to DNA sequencing, recontact, and longitudinal studies stemming from the EMR.

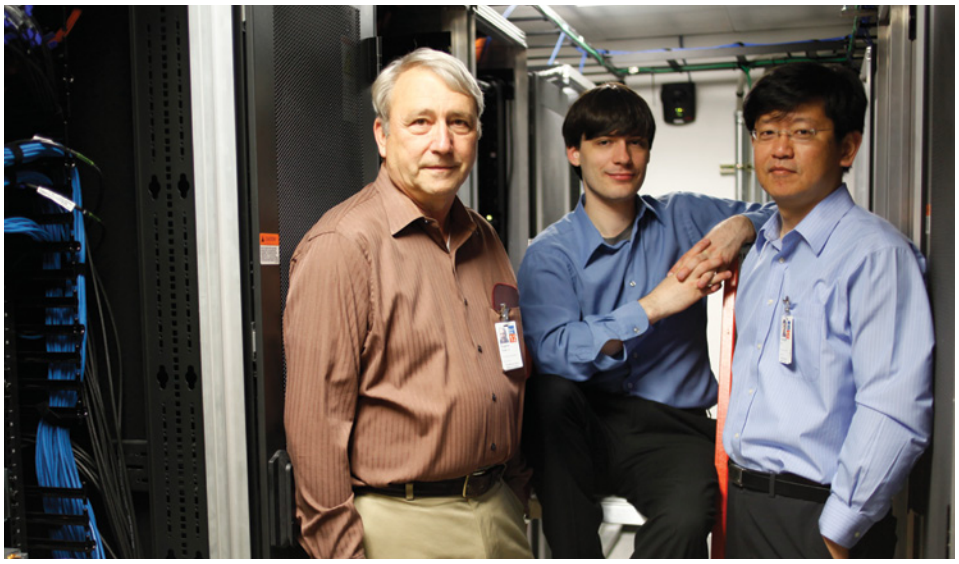
Says Carlos Cordon-Cardo, MD, PhD, Chair of Mount Sinai's Department of Pathology, "Minerva can generate complex molecular simulations and build predictive models that will enable us to stratify patients into treatment groups." This, he adds, will allow physicians to identify the best treatments for each patient.

Plans call for Minerva to move from its current location at Mount Sinai School of Medicine, to the new Leon and Norma Hess Center for Science and Medicine when it opens later this year.



Mount Sinai's new supercomputer, named Minerva, is one of the nation's largest high-performance computer clusters in academic medicine.

Patricia Kovatch developed Mount Sinai's supercomputer.



The Department of Scientific Computing oversees Minerva and assists Mount Sinai's researchers in maximizing her computing potential for their work. FROM LEFT TO RIGHT: Eugene Fluder, PhD, Computational Scientist; Zachary Giles, High-Performance Computing Administrator; and Hyung Min Cho, PhD, Computational Scientist

Enhanced Therapeutic Discovery

Scott L. Friedman, MD, an accomplished physician-scientist in the field of liver disease, has been named Dean for Therapeutic Discovery at The Mount Sinai Medical Center. In his new role, Dr. Friedman plans to infuse Mount Sinai's culture of research excellence with an entrepreneurial spirit. He will integrate Mount Sinai's facilities that create or identify new molecules, mouse antibodies, stem cells that are derived from skin cells, and technology transfer, which handles the legal and technical exchange of information.

"Our goal is to change the culture at Mount Sinai into an institution that attracts and fosters innovative scientists, identifies and develops new therapies, and accelerates their commercialization to benefit our patients."

Scott L. Friedman, MD,
Dean for Therapeutic Discovery

"Our goal is to change the culture at Mount Sinai into an institution that attracts and fosters innovative scientists, identifies and develops new therapies, and accelerates their commercialization to benefit our patients," says Dr. Friedman, Fishberg Professor of Medicine and Chief, Division of Liver Diseases at Mount Sinai. "We want to create a new model for how innovation happens in an academic medical center."

Dr. Friedman would like every scientist to consider how his or her work in the laboratory can reach beyond the next research paper, and help fight disease on a clinical level. For three decades, Dr. Friedman has conducted pioneering research into the underlying causes of scarring of the liver, or fibrosis, which affects millions of people worldwide. His research has been continuously funded since 1985. He consults for more than 40 companies.

For many years, Mount Sinai's renowned researchers, including Roger Hajjar, MD, Professor of Cardiology, Peter Palese, PhD, Professor of Infectious Diseases, and Chair of Microbiology, and Dr. Friedman, have worked extensively with private industry to create effective therapies. By encouraging others to embrace this mindset, Mount Sinai's leadership believes a larger stream of novel drugs and diagnostic products would be discovered here, and then developed through joint ventures and other agreements with pharmaceutical and biotechnology companies.

The time is right to begin this new direction, says Dr. Friedman. Drug companies are now redefining their research and development models to counter the missteps they have had in introducing medicines and diagnostics into the marketplace after spending billions of dollars. Increasingly, pharmaceutical executives believe that researchers making discoveries at top medical schools, such as Mount Sinai, can help them be more successful. At the same time, funding from the National Institutes of Health has shrunk, putting research projects in jeopardy. Any moneys coming from commercial products will afford patients better therapies, says Dr. Friedman, while bringing revenue to Mount Sinai.

"We want companies to say, 'It's great to partner with Mount Sinai,'" says Dr. Friedman. "'They have a nimble administration, they're responsive, and they have great science.'"

Commercializing Technological Breakthroughs

As Vice President of Technology and Business Development at Mount Sinai School of Medicine, Teri F. Willey oversees a program that facilitates commercial partnerships with the ultimate goal of creating better therapeutic treatments and diagnostics to help patients.

"The revenues are reinvested to enhance research and encourage further innovation at Mount Sinai."

Teri F. Willey, Vice President of
Technology and Business Development

Mount Sinai's current portfolio of more than 400 discoveries includes a potential universal flu vaccine, compounds that inhibit oncogenic pathways as a means to treat cancer, and a blood test to determine specific food allergies. More than 80 of these discoveries generate revenue as a result of commercialization. For 2011 and 2012, Mount Sinai and its inventors expect to generate more than $90 million. "The revenues are reinvested to enhance research and encourage further innovation at Mount Sinai," says Ms. Willey. Last spring, Ms. Willey facilitated an agreement between Mount Sinai and the United Kingdom's Medical Research Council for humanization and therapeutic development of monoclonal antibodies that are created by Mount Sinai's Center for Therapeutic Antibody Discovery. Under Thomas Moran, PhD, Director of Mount Sinai's Center for Therapeutic Antibody Discovery, Mount Sinai has become one of the largest creators of mouse antibodies in the New York metropolitan area.

Since negotiations to commercialize early stage ideas can be delicate and time lines for product development long and risky, Ms. Willey says she is particularly satisfied when agreements are reached and the discoveries are commercialized into products that help patients. "It is important to me to do work that matters, and I can do that at Mount Sinai in support of our excellent research and clinical scientists," she says.

Prior to her position at Mount Sinai, Ms. Willey was Chief Executive of Cambridge Enterprise, Ltd., the technology commercialization affiliate of the University of Cambridge. During her tenure, Cambridge Enterprise was incorporated as a wholly owned subsidiary of the University. Ms. Willey is credited with overseeing a portfolio of more than 80 spin-out companies, 878 technology transfer transactions, and generating approximately $47 million for the University and its stakeholders.

Earlier, Ms. Willey was a founder and Managing Partner of ARCH Development Partners, a seed and early-stage venture fund focused on university and corporate spin-outs. She also served as Vice President of Start-ups at ARCH Development Corporation, a subsidiary of the University of Chicago, which commercialized technology from the University and Argonne National Laboratory. She is a past President of the Association of University Technology Managers.

Guiding Technology, Innovation, and Entrepreneurship

Venture capitalist Geoffrey W. Smith has joined the faculty of Mount Sinai's Graduate School of Biological Sciences, where he will create and direct a center for technological innovation and entrepreneurship.

"The mindset of how an industrial scientist solves problems is very different from an academic scientist."

Geoffrey W. Smith,
Director of the Center for Technology, Innovation, and Entrepreneurship

Mr. Smith is a founder and Managing Partner of Ascent Biomedical Ventures (ABV), a New York-based venture capital firm that specializes in investing in seed and early-stage life-science technology companies.

Five years ago, Mr. Smith founded the Science & Economics Program at Rockefeller University, which teaches students about intellectual property, technology transfer, and drug discovery. He says, "It was very clear to me that students wanted to explore these topics."

At Mount Sinai, Mr. Smith will teach both faculty and students. With faculty, he will provide workshops on problem solving, and developing and managing resources. For students, the focus will be on training them to think in terms of developing "use-inspired" research. "The mindset of how an industrial scientist solves problems is very different from an academic scientist," he adds.

Mount Sinai's highest priority has always been to develop and train the most rigorous and innovative basic scientists. That will remain the same. But Mount Sinai's basic scientists will also be trained to become leaders in translational research, and Mr. Smith's program will prepare them for such a role in the scientific community. Under Mr. Smith, students will learn how to turn an idea into an invention.

As an increasing number of Mount Sinai graduates look for jobs in industry rather than as independent National Institutes of Health-funded investigators, the school's leadership expects Mr. Smith's courses will be particularly valuable. The knowledge the students gain will make them more competitive and more appealing than their conventionally trained peers.

Biomedical Software Development

Jeff Hammerbacher, an expert in data analysis who led the Data team at Facebook Inc., and co-founded Cloudera Inc., an open source software company in Palo Alto, Calif., has joined Mount Sinai School of Medicine as an assistant professor.

At Mount Sinai, Mr. Hammerbacher will lead biomedical software development, and work with Eric Schadt, PhD, Director of the Institute for Genomics and Multiscale Biology, and Professor and Chair of the Department of Genetics and Genomic Sciences. Dr. Schadt and Mr. Hammerbacher are board members of Sage Bionetworks in San Francisco, a nonprofit biomedical research organization.

Mr. Hammerbacher says his experience in managing and extracting information from large datasets will help Mount Sinai's researchers conduct their investigations more quickly
and efficiently.

"The scientific method hasn't changed, but there's been a revolution in the computational tools we have to pursue investigations, allowing us to do science faster," says Mr. Hammerbacher. "I see myself as a facilitator, bringing a new set of tools for clinicians and researchers to use in answering the questions they can't answer now."

In this endeavor, Mount Sinai plans to install software from Cloudera that manages and administers Hadoop, a technology platform that processes virtually unlimited amounts of data. Hadoop's underlying technology was invented by developers at Google in its early days, when the company needed to collect huge amounts of information and examine user behavior to improve performance algorithms. Similar data-mining techniques are now applied to scientific research.

"The scientific method hasn't changed, but there's been a revolution in the computational tools we have to pursue investigations, allowing us to do science faster."

Jeff Hammerbacher, Assistant Professor

Under Mr. Hammerbacher, Mount Sinai's new computing capabilities will span the disciplines of web-scale data management and modern medicine, speeding up discovery, and improving clinical outcomes.

SINA*Innovations*

Launching a New Era of Discovery

Exploring successful models of innovation—in and out of traditional biomedical research organizations—will be the focus of a three-day conference hosted by The Mount Sinai Medical Center.

The conference, SINA*Innovations*, to be held Monday through Wednesday, November 12-14, will feature prominent speakers from academia, the biotechnology and pharmaceutical industries, the investment community, and global media. It will highlight the most effective ways for academic medical centers to accelerate drug discovery and commercialize emerging biotechnologies, with the ultimate goal of creating better diagnostics and treatments that cure human diseases.

Keynote speakers at SINA*Innovations* will include: David Zaslav, President and Chief Executive Officer of Discovery Communications, and Ivan Seidenberg, Retired Chairman and CEO of Verizon Communications. There will be presentations by renowned faculty members and thought leaders from Mount Sinai School of Medicine; Johns Hopkins University; Massachusetts Institute of Technology; University of California, San Francisco; Stanford University School of Medicine; and Harvard Medical School.

As a medical school that is fully integrated with a hospital, Mount Sinai has ideal conditions for collaboration among scientists and physicians, according to Scott L. Friedman, MD, Mount Sinai's Dean for Therapeutic Discovery, the Fishberg Professor of Medicine, and Chief of the Division of Liver Diseases. He says, "Mount Sinai has a long history of translating clinical observations and scientific discoveries into better treatments for patients. We are committed to redefining how academic medical centers contribute to innovations."

SINA*Innovations* Program

November 12, 2012

7:30 – 8:15
Breakfast/registration

8:30 – 8:45
Welcoming Comments
Dennis Charney, MD, Dean, Mount Sinai School of Medicine (MSSM)

8:45 – 9:15
Keynote Address
Introduction: *Dennis Charney, MD*
Speaker: *Ivan Seidenberg, Retired Chairman and CEO, Verizon Communications, Inc.*

9:20 – 10:30
Blueprints for Innovation in Academia
Moderators: *Scott L. Friedman, MD, Anthony Melendez and Nadim Choudhury, Mount Sinai*
- *June Lee, MD, Program Analyst, Clinical and Translational Science Institute (CTSI), University of California, San Francisco*
- *Daria Mochly-Rosen, PhD, Senior Associate Dean for Research, Director of SPARK Translational Research Program, Stanford University School of Medicine*
- *John M. Collins, PhD, COO, Center for Integration of Medicine and Innovative Technology (CIMIT) (A Boston Consortium)*
- Panel Discussion

10:30 – 11:00
Break

11:00 – 11:30
Keynote Address
Introduction: *John Morrison, PhD, Dean, Graduate School of Biological Sciences, Mount Sinai*
Keynote Speaker: *Elazer R. Edelman, MD, PhD, Thomas D. and Virginia W. Cabot Professor, Health Sciences and Technology, Massachusetts Institute of Technology (MIT)/Harvard Medical School*

11:35 – 12:30
Enabling Innovation Through Education
Moderators: *John Morrison, PhD, and Maryam Jahanshahi*
- *Nicholas Jones, PhD, Benjamin T. Rome Dean, Whiting School of Engineering, Johns Hopkins University*
- *Geoffrey W. Smith, MSSM*
- *Elazer R. Edelman, MD, PhD, Harvard Medical School/MIT*

12:30 – 1:00
Pick up lunch at breakout rooms

1:00 – 2:00
Innovation Resources at MSSM – Breakout Sessions with Lunch

- CTSA: Experimental Therapeutics – *Ming Ming Zhou, PhD, Dan Felsenfeld, PhD, Ravi Iyengar, PhD, Tom Moran, PhD*
- CTSA: Imaging Resources and SRFs – *Zahi Fayad, PhD, and Reginald Miller, DVM*
- Large scale genomics – *Andrew Kasarskis, PhD*
- Systems pathology – *Carlos Cordon-Cardo, MD, PhD*
- How do you teach Innovation? – *John Morrison, PhD, Nicholas Jones, PhD, and Eric Sobie, PhD*
- Innovation in Clinical Trials – *Annetine Gelijns, PhD, Deborah Ascheim, MD, and Emilia Bagiella, PhD*

November 13, 2012

7:30 – 8:15
Breakfast/registration

8:30 – 9:00
Keynote Address
Introduction: *Hugh Sampson, MD, Mount Sinai*
Speaker: *David Zaslav, President and CEO, Discovery Communications*

9:05 – 10:15
Mount Sinai Innovation in Drug Discovery
Moderator: *Kenneth Davis, MD, President and CEO, Mount Sinai Medical Center, and Nicole McKnight, PhD*
- *E. Premkumar Reddy, PhD*
- *Robert Desnick, MD, PhD*
- *Ross Cagan, PhD*
- *Roger Hajjar, MD*
- *Ravi Iyengar, PhD*

10:30 – 11:00
Break

11:00 – 12:15
Biotech: From Academia to Commercialization
Moderators: *Ross Cagan, PhD, and Yana Zorina, PhD*
- *Colin Goddard, PhD, Chairman and CEO, Coferon*
- *James McCullough, CEO, Exosome Diagnostics*
- *George D. Yancopoulos, MD, PhD, President, Research Laboratories and CSO, Regeneron Pharmaceuticals, Inc.*
- *Geoffrey W. Smith, MSSM*

12:15- 1:00
Funding Innovation
Moderators: *Eric Schadt, PhD, and Benjamin Laitman*
- *Daniel Behr, Senior Vice President, Access BridgeGap Ventures*
- *Martin Vogelbaum, Partner, Rho Ventures*
- *Barbara Dalton, PhD, Vice President, Venture Capital, Worldwide Business Development and Innovation, Pfizer, Inc.*
- *Jai Ranganathan, PhD, Co-founder, SciFund Challenge*

1:00 – 1:30
Pick up lunch at breakout rooms

1:30 – 2:30
Innovation and Commercialization – Breakout Sessions with Lunch

- Invention disclosure, licensing, and intellectual property – *Teri Willey*
- Start-ups – *Ross Cagan, PhD, and Geoffrey Smith*
- Venture capital – *Martin Vogelbaum and Daniel Behr*

November 14, 2012

7:30 – 8:15
Breakfast/registration

8:30 – 9:00
Keynote Address
Introduction: *Eric Schadt, PhD, Mount Sinai*
Speaker: *Jeffrey Hammerbacher, Assistant Professor, MSSM, and Founder and Chief Scientist, Cloudera*

9:05 – 10:15
The Pharma Perspective
Moderators: *Kenneth Davis, MD, Teri Willey, and Keith Sigel, MD*
- *John Sninsky, PhD, Vice President, Discovery Research, Celera Corporation*
- *Uwe Schoenbeck, PhD, CSO, External Research and Development Innovation (ERDI), Pfizer Worldwide Research and Development*
- *Paul Stoffels, MD, Worldwide Chairman, Janssen Pharmaceutical Companies of Johnson and Johnson*
- *Muzammil M. Mansuri, PhD, Senior Vice President, Research and Development Strategy, Gilead Pharmaceuticals*

10:15 – 10:45
Break

10:45 – 12:15
Mount Sinai Innovation in Devices, Diagnostics, and Clinical Trials
Moderators: *Yasmin Hurd, PhD, and Patrick Maffucci*
- *Michael Marin, MD*
- *Eric Genden, MD*
- *Erwin Bottinger, MD*
- *Philip Landrigan, MD*
- *Carlos Cordon-Cardo, MD, PhD*
- *Michael Parides, PhD*

12:15 – 12:30
Closing Remarks: Mount Sinai Will Change the Paradigm
Speaker: *Kenneth Davis, MD*

The Leon and Norma Hess Center for Science and Medicine Will Be a Hub for Translational Research

Construction is nearly complete on The Mount Sinai Medical Center's new 10-story, state-of-the-art research and clinical facility, the Leon and Norma Hess Center for Science and Medicine, on Madison Avenue, between 101st and 102nd streets. Since breaking ground in June 2009, the Hess Center—with a half-million square feet of space—has been one of the largest building projects in New York City.

The new facility will increase Mount Sinai's clinical and research capacity by nearly 30 percent, bringing together world-class researchers and clinicians from across disciplines to provide a pioneering approach to patient-centered care.

"The Hess Center will expand our ability to understand and treat the most challenging medical problems, and at the same time add hundreds of jobs to the New York economy," says Kenneth L. Davis, MD, President and Chief Executive Officer of The Mount Sinai Medical Center. "The building will also bring medical breakthroughs to patients by facilitating the translation of basic science done on one floor and life-saving results for patients on another floor."

By expanding Mount Sinai's research footprint, the Hess Center is expected to draw more than $350 million in National Institutes of Health funding in its first five years. One of the few U.S. research facilities slated to open this year, it will house six floors of cutting-edge laboratories for The Friedman Brain Institute, the Cardiovascular Research Institute, the Institute for Genomics and Multiscale Biology, The Tisch Cancer Institute, and the Translational and Molecular Imaging Institute (TMII).

In addition to its two new floors of cancer research space, The Tisch Cancer Institute's Derald H. Ruttenberg Treatment Center will also be located in the Hess Center. The Ruttenberg Treatment Center's infusion suite will expand to 49 chairs from 16, and will include 48 exam rooms, each of which can accommodate several family members or friends for support. The Cancer Radiology Department will be adjacent to TMII on the lower floor that was built to house the latest diagnostic imaging tools, including MRI, PET, and CT. A specialized cancer pharmacy will be located on the ground floor.

Adjacent to the Hess Center stands a new 52-story residential tower at 1214 Fifth Avenue at 102nd Street, which will house two floors of the Faculty Practice Associates, Mount Sinai's outpatient practice. The floors will be dedicated to primary care and diabetes management.

Mount Sinai's research and clinical care will be housed under one roof in the new Leon and Norma Hess Center for Science and Medicine, which rises above Madison Avenue.

Departments will begin moving into the new building in the fourth quarter of 2012. More than 400 patient visits are expected each day.

The center's lead gift was made by the Hess family. In recognition of this extraordinary gift, the center was named in honor of Leon Hess, a Mount Sinai Trustee from 1966 until his death in 1999, and his wife, Norma, for their historic generosity and commitment to Mount Sinai.

Designed by Skidmore, Owings & Merrill, the architects of the Willis Tower in Chicago (still referred to as the Sears Tower), and One World Trade Center (formerly named the Freedom Tower), the clinical space is strategically designed to facilitate a flow of patients, reduce appointment wait times, and enhance patient comfort.

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MOUNT SINAI SCHOOL OF MEDICINE

The Mount Sinai Medical Center
One Gustave L. Levy Place, Box 1107
New York, NY 10029-6574

Mount Sinai School of Medicine is home to 14 translational research institutes.

THE BLACK FAMILY STEM CELL INSTITUTE
Director: Ihor R. Lemischka, PhD

THE CHARLES BRONFMAN INSTITUTE FOR PERSONALIZED MEDICINE
Director: Erwin P. Bottinger, MD

CHILD HEALTH AND DEVELOPMENT INSTITUTE
Director: Bruce D. Gelb, MD

DISEASE PREVENTION AND PUBLIC HEALTH INSTITUTE
Director: Paolo Boffetta, MD, MPH

EXPERIMENTAL THERAPEUTICS INSTITUTE
Director: Ravi Iyengar, PhD

THE FRIEDMAN BRAIN INSTITUTE
Director: Eric J. Nestler, MD, PhD

GLOBAL HEALTH AND EMERGING PATHOGENS INSTITUTE
Director: Adolfo García-Sastre, PhD

IMMUNOLOGY INSTITUTE
Directors: Lloyd F. Mayer, MD; and Sergio A. Lira, MD, PhD

INSTITUTE FOR GENOMICS AND MULTISCALE BIOLOGY
Director: Eric E. Schadt, PhD

METABOLISM INSTITUTE
Director: Yaron Tomer, MD

THE RECANATI/MILLER TRANSPLANTATION INSTITUTE
Director: Sander S. Florman, MD

THE TISCH CANCER INSTITUTE
Director: Steven J. Burakoff, MD

TRANSLATIONAL AND MOLECULAR IMAGING INSTITUTE
Director: Zahi A. Fayad, PhD

THE ZENA AND MICHAEL A. WIENER CARDIOVASCULAR INSTITUTE
Director: Valentin Fuster, MD, PhD