



**Mount
Sinai**

inside

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Use of Big Data Leads to Discovery in Diabetes

After carefully analyzing the electronic health records (EHRs) of 11,000 patients, investigators at the Icahn School of Medicine at Mount Sinai have discovered three potential new subtypes of type 2 diabetes.

The discovery, led by Joel Dudley, PhD, Director of Biomedical Informatics at the Icahn School of Medicine, highlights the power of new technology and the promise of precision medicine, as the Mount Sinai Health System ushers in the use of Big Data in discovering, treating, and preventing disease. The results of the study were published in *Science Translational Medicine* in October, 2015.

“There has been a lot of talk about ‘precision medicine,’ but not a lot of people actually doing it,” says Dr. Dudley. “Our research puts Mount Sinai in the forefront of this effort and provides a concrete example of what precision medicine looks like: redefining patient



Joel Dudley, PhD

populations and disease with data.”

In his recent blog post, Francis S. Collins, MD, PhD, Director of the National Institutes of Health (NIH), noted Mount Sinai’s findings, writing that “researchers demonstrated the tremendous potential of using EHRs, combined with genome-wide analysis, to learn more about a common, chronic disease—type 2 diabetes.”

Dr. Collins wrote that Mount Sinai’s approach was “similar to building a social network with connections forged not on friendships but medical information. When the resulting network was color-coded to reveal participants with type 2 diabetes, an interesting pattern emerged. Instead of being located in one large clump on this ‘map,’ the points indicating

people with type 2 diabetes were actually grouped into several smaller, distinct clusters, suggesting the disease may have subtypes.”

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New Chairs for Orthopaedics and Neurology

Two renowned physicians and researchers—Leesa M. Galatz, MD, and Barbara G. Vickrey, MD, MPH—recently became the Mount Sinai Health System Chair of Orthopaedics, and Neurology, respectively, at Icahn School of Medicine at Mount Sinai. Dr. Galatz was recruited from Washington University in St. Louis, where she was a Professor of Orthopaedic Surgery and Chief of the Shoulder and Elbow Service. Dr. Vickrey had served for 25 years on the faculty of the University of California, Los Angeles (UCLA), where she was Professor of Neurology.

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Leesa M. Galatz, MD



Barbara G. Vickrey, MD, MPH

The Valentin Fuster Society Celebrates Anniversary

The Valentin Fuster (VF) Society, a nonprofit alumni association comprised of graduates of the Zena and Michael A. Wiener Cardiovascular Institute, recently held its 15th Anniversary Dinner at the New York Academy of Medicine. One hundred forty alumni attended the event to discuss academic and clinical ideas, reconnect with former colleagues, and network with a group of talented cardiologists.

Graduates who have trained with Valentin Fuster, MD, PhD, Director of Mount Sinai Heart, and Physician-in-Chief of The Mount Sinai Hospital, created the VF Society to

strengthen the bond among alumni and The Mount Sinai Hospital.

More than 250 alumni who have trained under Dr. Fuster since 1981 belong to the VF Society. The anniversary dinner is held every two years, drawing VF Society members from across the United States and Canada.

“Our mission is to recognize our talented alumni and to bring everyone together for the betterment of Mount Sinai Heart and the field of cardiology,” says Dr. Fuster. “I am very proud of the incredible students who I have had the privilege to train.”

The evening included a symposium on stem cell therapy for cardiac patients, a show-and-tell by various alumni, and a screening of “Making Rounds,” a documentary film about the daily hospital rounds made by Dr. Fuster and Herschel Sklaroff, MD, Clinical Professor of Medicine (Cardiology), Mount Sinai Heart.

In addition, the VF Society gave an Appreciation Award to Harry Weinrauch, MD, Assistant Clinical Professor of Medicine (Cardiology), Mount Sinai Heart, for providing more than 60 years of excellent cardiac care to his patients.



One hundred forty alumni attended the 15th Anniversary Dinner of the VF Society, named in honor of Valentin Fuster, MD, PhD, sixth from left, front row.

› Use of Big Data Leads to Discovery in Diabetes *(continued from page 1)*

According to Dr. Dudley, some doctors had noticed the unique characteristics in patients with diabetes, but this was the first time these groupings were proven to be significant. More than 29 million people in the United States have diabetes.

“Experienced clinicians have always suspected that not all people with type 2 diabetes are the same,” says Ronald Tamler, MD, PhD, Director of the Mount Sinai Clinical Diabetes Institute, and a co-author of the study. “These new findings will eventually help us recommend a tailored regimen for treatment and complication prevention for a given diabetes subtype.”

Over two years, the researchers analyzed vast troves of patient data in the Icahn School of Medicine at Mount Sinai’s racially and socioeconomically diverse BioMe™ Biobank Program. They located

2,551 patients with type 2 diabetes and found that people with the disease naturally grouped into three subtypes: those most at risk for developing diabetic nephropathy and retinopathy; cancer and cardiovascular disease; or neurological disease, allergies, and HIV infections. For each subtype, the researchers discovered unique genetic variants in hundreds of genes.

In their next phase of study, the researchers plan to evaluate whether the genetic variants they have identified are able to reliably predict the complications a person with type 2 diabetes is most likely to experience.

Their hope is that ultimately, diabetic patients will receive highly individualized treatment plans that are far more effective than today’s reliance on a “one-size-fits-all” approach.

Examining the Body's Response to Radiation Therapy

Researchers at The Tisch Cancer Institute have uncovered an intriguing mechanism that may help explain why radiation therapy eradicates cancerous tumors in some patients but not in others.

Their study, reported in the September 7, 2015, issue of *Nature Immunology*, examined how special skin immune cells, known as Langerhans cells, perform in mice models of melanoma.

They found that when skin that harbors tumors is exposed to ionizing radiation, Langerhans cells repair their affected DNA, making them resistant to radiotherapy. Langerhans cells exposed to radiation start to travel to nearby lymph nodes where they activate a population of regulatory T cells that inhibit antitumor immunity. As a result, the tumor grows faster.



Jeremy Price, PhD

“Now that we better understand the mechanisms of how Langerhans cells impact the immune system, we can work, clinically, to deplete this cell population to promote antitumor immune response,” says lead author Jeremy Price, PhD, who is in his final year of medical school at the Icahn School of Medicine at Mount Sinai. “We’re helping to inform a very active field of research that’s developing around how to make treatments involving radiation and immunotherapy even more effective.”

Indeed, the identification of immune checkpoint inhibitors that enable the body to unleash a powerful anticancer response without being restrained by the cancerous tumors has been the most significant advance in cancer treatment in almost 40 years.

Miriam Merad, MD, PhD, Director of the Human Immune Monitoring Core at The Tisch Cancer Institute, and the study’s senior author, says the discovery of immune checkpoint inhibitors has given new impetus to her team’s work with Langerhans cells, which she initiated

in 2002 as a postdoctoral student at Stanford University.

Dr. Merad says Mount Sinai’s study on melanoma can apply to other organs and types of cancer throughout the body, where cousins of Langerhans cells, known as macrophages, are also rendered immunosuppressive by radiotherapy. The new findings suggest that strategies aimed at depleting or activating Langerhans cells or macrophages prior to exposure to radiation therapy may synergize with checkpoint immunotherapy or targeted therapy to improve antitumor response.



Miriam Merad, MD, PhD

“We’re helping to inform a very active field of research that’s developing around how to make treatments involving radiation and immunotherapy even more effective.”

— Jeremy Price, PhD

Advances in cancer immunotherapy also are being led by Nina Bhardwaj, MD, PhD, Director of Immunotherapy, and Professor of Medicine (Hematology and Medical Oncology), at The Tisch Cancer Institute. In clinical studies, Dr. Bhardwaj and her team are exploring multiple approaches to immunotherapy, from intratumoral injections to the development of personalized vaccines used in combination with traditional treatments such as surgery, radiation, and chemotherapy.

The Tisch Cancer Institute, working in collaboration with researchers led by Eric E. Schadt, PhD, Director of the Icahn Institute for Genomics and Multiscale Biology, is one of a handful of U.S. medical institutions currently pursuing personalized vaccines. Dr. Schadt is also Chair of the Department of Genetics and Genomic Sciences, and the Jean C. and James W. Crystal Professor of Genomics.

In a unique, proof-of-concept study that will begin trials this year, Dr. Bhardwaj’s team will explore the feasibility of developing personalized vaccines for patients with multiple solid tumors.

New Director Appointed at the Ear Institute

Peter C. Weber, MD, MBA, a noted clinician and researcher in pediatric and adult ear diseases, has been appointed Director of the Ear Institute at New York Eye and Ear Infirmary of Mount Sinai and Professor of Otolaryngology, Head and Neck Surgery, at Icahn School of Medicine at Mount Sinai. Dr. Weber previously served as Chief Medical Officer at Cochlear™ Americas, and Professor and Director of Otolaryngology/Neurotology at University of Massachusetts Medical School.

“We are delighted to welcome Dr. Weber to the Ear Institute, our flagship hearing and balance clinical center,” says James C. Tsai, MD, MBA, President of New York Eye and Ear Infirmary of Mount Sinai and Chair of the Department of Ophthalmology, Mount Sinai Health System. “His vision will have a significant impact on the caliber of care we give our patients and provide a clear direction for innovative research in the area of hearing sciences.”

Dr. Weber is a specialist in cochlear implants, implantable hearing aids, infectious cholesteatomas, acoustic neuromas, ear tumors, skull-bone lesions, facial nerve disorders, and vertigo.

“Dr. Weber’s vast experience in the field of otology, both in academia



Peter C. Weber, MD, MBA

and industry, make him an exceptional fit to help us bring the Ear Institute to regional and national prominence,” says Eric M. Genden, MD, FACS, MHA, the Dr. Isidore Friesner Chair of Otolaryngology, Department of Otolaryngology-Head and Neck Surgery, Mount Sinai Health System.

› New Chairs Named for Orthopaedics and Neurology *(continued from page 1)*

Dr. Galatz, who also has the title of Mount Sinai Professor in Orthopaedics, is considered an authority in surgery for traumatic and degenerative disorders of the shoulder and elbow, including rotator cuff repair, arthroscopic surgery, minimally invasive fracture repair, and joint replacement. She is an active researcher in tendon healing and tissue engineering, serving as a co-primary investigator on two major projects funded by the National Institutes of Health. She additionally is an Associate Editor for Basic Science for the *Journal of Shoulder and Elbow Surgery* and a peer reviewer for other orthopaedic publications. Dr. Galatz has received numerous awards, and has been a European Shoulder and Elbow Traveling Fellow, sponsored by American Shoulder and Elbow Surgeons, and an American-British-Canadian Traveling Fellow, sponsored by the American Orthopaedic Association.

“As a leading researcher in shoulder and elbow surgery, Dr. Galatz has unique expertise and experience that will be a great asset to our School of Medicine and our hospitals,” says Dennis S. Charney, MD, Anne and Joel Ehrenkranz Dean, Icahn School of Medicine at Mount Sinai and President for Academic Affairs, Mount Sinai Health System.

Dr. Galatz earned her MD degree at George Washington School of Medicine and Health Sciences in Washington, D.C. Following an internship and residency at George Washington University Hospital, she completed a fellowship in shoulder and elbow surgery at the Hospital of the University of Pennsylvania.

Dr. Vickrey, who was also named the Henry P. and Georgette Goldschmidt Professor of Neurology, is an internationally renowned

neurologist and health services researcher. She was elected in 2011 to the National Academy of Medicine, one of the highest honors in academic medicine, and currently is President of the American Neurological Association.

Her wide-ranging research has demonstrated that a collaborative approach—one that engages health care systems, community organizations, patients, and caregivers—can enhance both quality of care and outcomes for dementia patients. She has designed health care delivery innovations for post-stroke risk factors in underserved populations and better ways to treat Parkinson’s disease in veterans. Dr. Vickrey currently leads a cooperative agreement from the National Institute of Neurological Disorders and Stroke for a five-year stroke prevention/intervention research program in health disparities.

“Dr. Vickrey’s outstanding research dovetails with other ongoing research efforts throughout the Mount Sinai Health System,” says Dr. Charney. “Her contributions will go beyond Neurology as she enlivens collaborations with Population Health Science and Policy, Geriatrics and Palliative Medicine, the Mount Sinai Institute of Technology, and the Institute for Health Care Delivery Science.”

Dr. Vickrey earned her MD degree at Duke University School of Medicine and her MPH at the UCLA Fielding School of Public Health. She completed postgraduate clinical training in medicine and neurology at the University of Washington in Seattle and then research fellowships in the Robert Wood Johnson Foundation Clinical Scholars Program at UCLA and the RAND/UCLA Center for Health Policy Study.

Around the Health System

Dubin Breast Center Holds Fifth Annual Gala

Nearly 500 guests attended the fifth annual Dubin Breast Center Benefit at the Mandarin Oriental, New York, on Monday, December 7, raising more than \$2.2 million to support the Center. The evening's presenting sponsor was Harry Winston.

Among the guests were Mount Sinai Health System Trustees Eva Andersson-Dubin, MD, and Glenn Dubin, who co-founded the Center, which is part of The Tisch Cancer Institute; and Elisa Port, MD, FACS, Chief of Breast Surgery and the Center's Co-Director. The event honored Michael Brodman, MD, Professor and System Chair, The Ellen and Howard C. Katz Chairman's Chair,

Department of Obstetrics, Gynecology and Reproductive Science, Icahn School of Medicine at Mount Sinai. Chloe Moussazadeh was presented with the event's inaugural Courage Award for her grace and resilience as a young breast cancer survivor.

Philanthropist Emily Blavatnik played a special role in supporting the event and presented an award to Dr. Brodman for his commitment to women's health care—including helping to create the new Blavatnik Family Foundation Women's Health Floor at The Mount Sinai Hospital. Located on the fourth floor of the



From left: Eva Andersson-Dubin, MD; Elisa Port, MD, FACS; Michael Brodman, MD; and Emily Blavatnik

Klingenstein Pavilion, it offers a special healing environment for postoperative breast and gynecological cancer patients.



From left: Deirdre Varona, Director, Environmental Service and Linen; Hoda Farghaly, Patient Ambassador, Environmental Service; Regina Censullo, MBA, Consultant, Labor Management Project; Caryn A. Schwab; Judy Trilivas, RN, MA, Vice President, Operations; Kyeong-Hwa Kim, RN, Clinical Nurse Manager; Claudine Brown, RN, Clinical Nurse Manager; and Kara Gelb, Consultant

Mount Sinai Queens Awarded for Improving the Patient Experience

Mount Sinai Queens was recently named a 2015 Success Story Award® winner—one of only 15 recipients nationwide—by Press Ganey Associates, Inc., for measurably improving the patient experience. The award recognized sustained improvements over the last three years in several areas, including nursing communications, responsiveness, cleanliness, and pain management. Caryn A. Schwab, Executive Director, Mount Sinai Queens, attributes this success to the “Mount Sinai Queens Way”—a culture of caring that emphasizes listening to patients and colleagues, acting on patient feedback, and always making patient care the top priority—that was developed from surveys asking staff to describe Mount Sinai Queens. Responses such as, “kind-hearted” and “team players” became the foundation of the “Mount Sinai Queens Way.”

“Winter Wonderland” at Urgent Care Inwood

Mount Sinai Doctors Urgent Care Inwood hosted a “Winter Wonderland” for 160 children and their parents on Friday, December 18. The young guests created ice cream cone ornaments, built mini popsicle-sleds, made snow globes, and warmed up at a hot chocolate cookie bar. The children, who are students from Good Shepherd School; Public School 98; PS 310 Marble Hill; and Elementary School for Math, Science, and Technology, also played in an igloo teepee, went “ice fishing,” and had their photos taken with Elsa, Anna, and Olaf, characters from Walt Disney's film *Frozen*®. Staffed by Mount Sinai physicians, the Urgent Care facility provides convenient access to immediate medical attention for the Inwood community, which is located in Manhattan's northernmost neighborhood.



Children created snow globes and crowns at “Winter Wonderland.”

EVENT

'Mount Sinai Mile' Indoor Walking Route

Mount Sinai Heart and the Wellness Initiative have mapped a one-mile indoor walking route through The Mount Sinai Hospital campus to help staff meet their physical activity goals at work. Go to <http://www.mountsinai.org/patient-care/service-areas/heart/mount-sinai-mile>.

Grand Rounds / Anesthesiology

Mark D. Neuman, MD, Assistant Professor, Anesthesiology, Critical Care, Perelman School of Medicine, University of Pennsylvania, presents "Getting to Regain or: How I Learned to Stop Worrying and Love Pragmatic RCTs."

Wednesday, January 13

6:30 – 8:10 am

The Mount Sinai Hospital Campus
Annenberg 13-01

Grand Rounds / Psychiatry

Craig L. Katz, MD, Associate Clinical Professor of Psychiatry, presents "A Primer on Global Mental Health."

Thursday, January 14

11:30 am – 1 pm

Mount Sinai Beth Israel
Podell Auditorium, Bernstein Pavilion

Grand Rounds / Surgery

Peter Angelos, MD, PhD, Chief, Endocrine Surgery, University of Chicago, presents "Surgeons and New Technology: Are We Honest With Our Patients?"

Wednesday, January 20

8 – 9 am

Mount Sinai Beth Israel
Podell Auditorium, Bernstein Pavilion

Friedman Brain Institute Translational Neuroscience Seminar Series

Takaki Komiyama, PhD, Robertson Investigator, New York Stem Cell Foundation, Assistant Professor, Neurobiology Section and Neurosciences Department, University of California, San Diego, presents "Imaging Neural Ensembles in Mice During Learning."

Thursday, January 21

1 pm

The Mount Sinai Hospital Campus
Hess Center, Seminar Room A

NextGen Nursing: Exploring Advances In Nursing Technology & Research

Levy Library kicks off the "Year of the Nurse" with "NextGen Nursing: Exploring Advances in Nursing Technology & Research," the second event in the Levy Library Research Insider Seminar Series. Speakers will include Robbie Freeman, MSN, RN, NE-BC, Associate Director, Clinical Innovation and Informatics, The Mount Sinai Hospital; Melanie Pratts, Director, Medical Systems, Information Technology, New York Eye and Ear Infirmary of Mount Sinai; and Nadia Sultana, DNP, MBA, RN-BC, Clinical Assistant Professor and Program Director, Nursing Informatics Master's and Advanced Certificate Programs, NYU College of Nursing. Registration is limited, and refreshments will be provided. For more information, and to register, visit <http://libcal.mssm.edu/event/2266971>, or contact Robin O'Hanlon at robin.ohanlon@mssm.edu.

Tuesday, January 19

12:30 – 1 pm: Refreshments
and Networking

1 – 4 pm: Speaker Presentations

The Mount Sinai Hospital Campus
Annenberg 12-01

Women in Science and Medicine Keynote Lecture and Reception

Sponsored by the Office for Women's Careers and the Office for Academic Development and Enhancement, this event will include a keynote speech by Susan Solomon, JD, Co-Founder and Chief Executive Officer of the New York Stem Cell Foundation Research Institute, titled "Actionable Strategies for Advancing Women in Science, Engineering, and Medicine." A networking reception will immediately follow.

Space is limited.

Please RSVP to <http://www.surveymonkey.com/r/SusanSolomon>.

Wednesday, January 20

Lecture: 4:30 – 5:30 pm

Reception: 5:30 – 6:30 pm

The Mount Sinai Hospital Campus
Hatch Auditorium



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