



**Mount
Sinai**

inside

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Restorative Surgery That Patients Can Smile About

Joshua D. Rosenberg, MD, Assistant Professor of Otolaryngology at Icahn School of Medicine at Mount Sinai, is one of only a handful of U.S. surgeons who is using an innovative new procedure to restore the ability to smile in patients with facial paralysis.

The procedure, called cranial nerve V and VII transfer, helps to ameliorate the disfiguring effects of severe Bell's palsy and, to a lesser extent, certain head and neck cancers. It calls for the surgeon to reroute the patient's robust masseter nerve—which activates the chewing muscles—in order to power the paralyzed facial nerves and restore facial muscle function, specifically the muscles involved in smiling.

Approximately 40,000 Americans experience Bell's palsy each year, which often paralyzes one side of the face. Scientists believe Bell's palsy stems from a viral infection or a

continued on page 5 >



Joshua D. Rosenberg, MD, center, performs a cranial nerve V and VII transfer at The Mount Sinai Hospital, with Marita Teng, MD, Associate Professor of Otolaryngology, left, and resident Joelle Glick, MD.

New Discoveries in the Treatment of Eczema



Emma Guttman-Yassky, MD

Seminal research led by Emma Guttman-Yassky, MD, Associate Professor of Dermatology, and Medicine (Clinical Immunology), at Icahn School of Medicine at Mount Sinai, has identified the key drivers of eczema and given rise to promising new treatments that appear to reverse the disease.

Dr. Guttman-Yassky and her team of researchers at Mount Sinai were the first to locate the activated pathways in eczema, or atopic dermatitis, specifically the Th2 pathway (driven by IL-4 and IL-13 cytokines) and the Th22 pathway (driven by the IL-22 cytokine). They found that these cytokines, or immune proteins, are responsible for the inflammatory, red, and extremely pruritic rashes that characterize eczema, as well as the defective epidermal barrier that allows increased penetration of allergens, irritants, bacteria, and viruses.

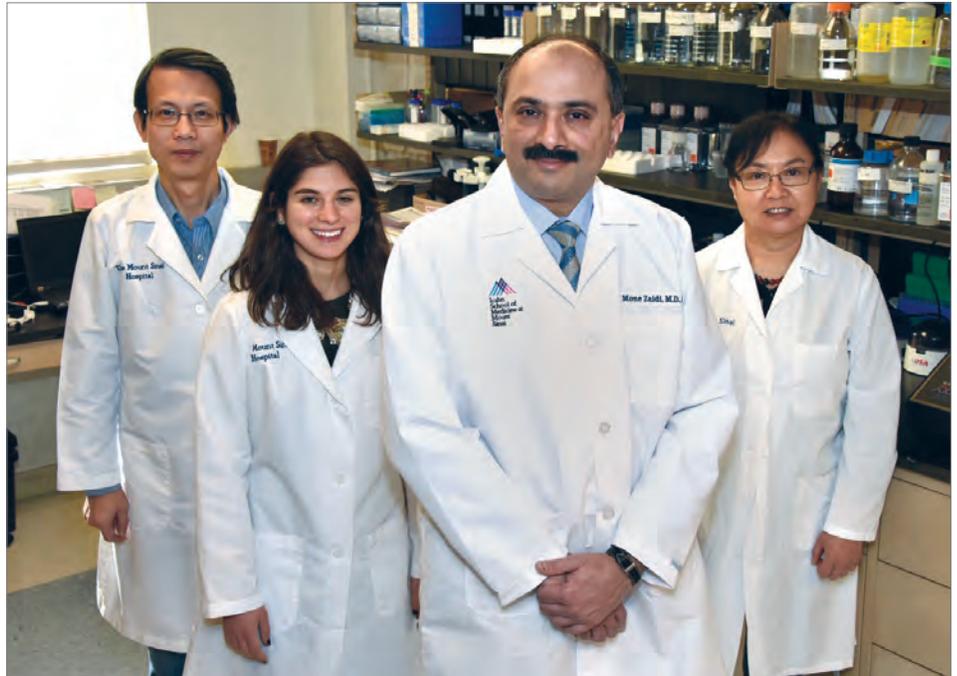
continued on page 2 >

Repurposing a Drug to Prevent and Treat Cancers

Two studies published recently in the *Proceedings of the National Academy of Sciences*, led by researchers at the Icahn School of Medicine at Mount Sinai, demonstrate how widely used, inexpensive medications to treat osteoporosis, known as bisphosphonates, have the potential to become potent cancer-fighting drugs.

“Our studies, which involved an international team of researchers, reveal a newfound mechanism that may enable physicians to use bisphosphonates to prevent and treat certain types of lung, breast, and colon cancers,” says lead study author Mone Zaidi, MD, PhD, FRCP, Professor of Medicine, and Structural and Chemical Biology, Icahn School of Medicine at Mount Sinai; Director of the Mount Sinai Bone Program; and member, The Tisch Cancer Institute at the Mount Sinai Health System. The scientific team included a number of top investigators in Mount Sinai’s Department of Medicine; the Mount

continued on page 3 >



Mone Zaidi, MD, PhD, FRCP, second from right, with members of his research team, which include, from left: Tony Yuen, PhD, Assistant Professor, Medicine (Endocrinology, Diabetes and Bone Disease); Agnes L. Stachnik, MS, first-year medical student, Icahn School of Medicine at Mount Sinai; and Li Sun, MD, PhD, Research Professor, Medicine (Endocrinology, Diabetes and Bone Disease), and Associate Director, Mount Sinai Bone Program.

> New Discoveries in the Treatment of Eczema *(continued from page 1)*

In a phase 1b clinical trial that was coupled with mechanistic studies performed by Dr. Guttman-Yassky’s group at Mount Sinai and researchers at Rockefeller University, the scientists found that dupilumab, a novel drug from Regeneron Pharmaceuticals Inc., effectively reversed the disease both clinically and in tissues. This trial and the phase II studies were so successful that the U.S. Food and Drug Administration fast-tracked development of dupilumab, which could be available as soon as 2017.

The results of this trial—conducted in collaboration with Regeneron, Sanofi, and researchers from Rockefeller University—were published in the December 2014 issue of *The Journal of Allergy and Clinical Immunology*.

“This drug is a game changer,” says Dr. Guttman-Yassky, also the Director of the Center of Excellence in Eczema at The

Mount Sinai Hospital. “It brings hope to patients with eczema who have tried everything. This disease is very debilitating. People cannot work and cannot sleep because of extreme itching. For many people, their whole lives are affected. It’s extremely gratifying for me to be able to help them.”

Backed by a \$2.7 million grant from the National Institutes of Health, Dr. Guttman-Yassky is currently recruiting patients for another clinical trial she is leading that will test a drug made by Pfizer Inc. that targets the Th22 pathway (targeting the cytokine IL-22), which she also identified as activated in eczema.

“This is a profound change in the way we treat atopic dermatitis,” says Mark Lebwohl, MD, Sol and Clara Kest Professor of Dermatology and Chair of the Kimberly and Eric J. Waldman Department of

Dermatology at Icahn School of Medicine at Mount Sinai. “Dr. Guttman-Yassky has given us a way to treat this awful disease with biologic agents, which is likely to be much safer than any treatment we’ve used in the past.”

According to the National Institutes of Health, an estimated 31 million adults and children in the United States have eczema. The number may actually be higher, but many people with the disease are never diagnosed by a physician.

Current treatments for moderate-to-severe atopic dermatitis include the drugs prednisone and cyclosporine, as well as phototherapy. All have drawbacks, however. The drugs target the entire immune system and can cause severe side effects, while phototherapy requires the patient to visit a doctor three times weekly.

Expanding the Role of Emergency Medical Services

A new project under way at the Mount Sinai Health System aims to analyze and expand the role of the nation's emergency medical services (EMS) to serve as a vital link in a highly coordinated system focused on the acute medical needs of the community.

The project, titled "Promoting Innovations in Emergency Medical Services," is a collaborative effort between Mount Sinai and the UC San Diego Health System. Backed by a \$225,000 grant from the National Highway Traffic Safety Administration, and the U.S. Departments of Homeland Security and Health and Human Services, the project seeks to eliminate the regulatory, financial, technological, and training barriers that have stood in the way of a meaningful overhaul of the nation's emergency medical services.

"EMS should be a tool for the health care system, not just a transportation service," says Kevin Munjal, MD, Assistant Professor of Emergency Medicine at the Icahn School of Medicine at Mount Sinai, and co-director of the project. "Rapid changes in health care are giving us the opportunity to capitalize on this potential. Our goal is to provide a national framework that allows best practices and delivery-system reform to flourish."

James Dunford, MD, Professor Emeritus of the UC San Diego Health System and co-director of Promoting Innovations, says, "We plan to highlight how novel EMS-based programs for delivering better care at lower cost can improve patient satisfaction, and, thus, recast EMS in a more contemporary light."



The researchers are currently gathering information from key EMS and community health care stakeholders around the country. They plan to hold regional meetings in New York and San Diego in May, followed by a national steering committee conference in September in Washington, D.C.

"From these activities, we hope to develop a blueprint for how EMS leaders can develop and test bold new delivery models," says Dr. Munjal. "We want to accelerate the pace of innovation in a system that is ready and eager for change."

› Repurposing a Drug to Prevent and Treat Cancers *(continued from page 2)*

Sinai Bone Program; the Department of Structural and Chemical Biology; and The Tisch Cancer Institute.

Bisphosphonates have been previously associated with slower tumor growth in some patients, but the mechanism was unknown. This new research demonstrates how bisphosphonates reduce the viability of tumor cells by blocking the abnormal growth signals that pass through human epidermal growth factor receptors (HERs). HERs occur on the surfaces of many cell types, regulating cell division and production—processes closely linked to both normal tissue growth and the abnormal growth seen in cancer.

"Many lung, breast, and colon cancers are driven by the HER family of receptors," says Dr. Zaidi. For example, about 30 percent of non-small cell lung cancers

and 90 percent of colon cancers are driven by small genetic changes in HER1, and 25 percent of breast cancers proceed from genetic changes that result in excessive amounts of HER2.

These findings led to a second study that examined the possible applications for bisphosphonates to prevent cancer, fight treatment-resistant tumors, and be used in conjunction with existing treatments. Researchers used the Connectivity Map, a database at The Broad Institute of the Massachusetts Institute of Technology and Harvard University, which analyzes connections among drugs, diseases, and genes to examine which genes become active or inactive after patients receive a given class of drugs.

Once they established the digital link between bisphosphonates and HER

receptors, the researchers conducted experiments in cancer cell cultures and in mice. Giving mice bisphosphonates early on prevented HER-driven tumors from forming, and combining bisphosphonates with the cancer drug Tarceva® not only stopped tumor growth but reversed it. In contrast, mice with colon cancer cells that do not signal for growth using HER receptors remained insensitive to bisphosphonate action.

"Having already been approved by the U.S. Food and Drug Administration as effective at preventing bone loss, and having a long track record of safety, bisphosphonates could be quickly applied to cancer if we can confirm in clinical trials that this drug class also reduces cancer growth in people," says Dr. Zaidi. "It would be much more efficient than starting drug design from scratch."

Around the Health System

Mount Sinai Celebrates American Heart Month

More than 1,000 participants received free screenings for blood pressure, cholesterol, triglycerides, body mass index, and peripheral vascular disease at heart-health fairs sponsored by the Mount Sinai Health System on Friday, February 6, National Go Red for Women Day.

Nurses, physicians, and other staff were on hand to provide information and answer questions about cardiovascular risk factors—such as high blood pressure, high cholesterol, obesity, and cigarette smoking—and ways to live a healthier life through regular screenings, diet, exercise, stress management, and other lifestyle changes.

“The ongoing focus and commitment of our clinical teams to provide education and care to our patients, families, staff, and community is a shared goal that we celebrate every American Heart Month,” says Carol Porter, DNP, RN, FAAN, the Edgar M. Cullman, Sr. Chair, Department of Nursing, and Chief Nursing Officer/Senior Vice President of Nursing, The Mount Sinai Hospital.

The health fairs were among several activities, which also included lectures by noted faculty from Mount Sinai Heart, that were planned for staff, visitors, and the community during February, American Heart Month.



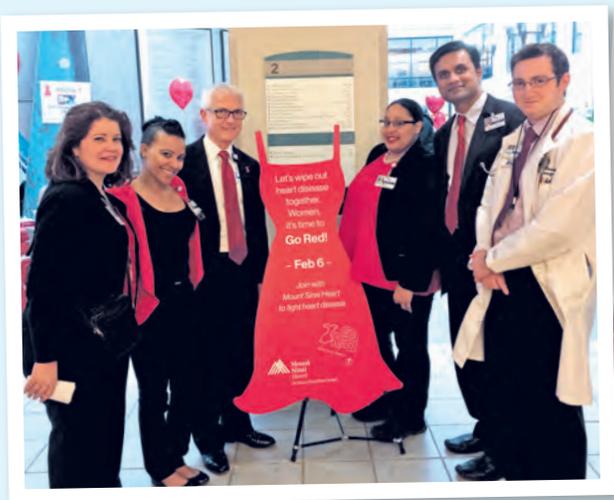
▲ Leadership and staff at The Mount Sinai Hospital on National Go Red for Women Day



◀ Participants at The Mount Sinai Hospital Heart-Health Fair included, from left: David L. Reich, MD, President and Chief Operating Officer, The Mount Sinai Hospital; Mary Ann McLaughlin, MD, MPH, Director, Cardiac Health Program, The Mount Sinai Hospital; Annapoorna Kini, MD, Director, Cardiac Catheterization Laboratory, The Mount Sinai Hospital; Sonia Zabala, RN, MPA, Nursing Director, Mount Sinai Heart; Linda Hackett, MPA, Senior Program Director, Community and Government Affairs; Beth Oliver, DNP, RN, Vice President, Cardiac Services, Mount Sinai Health System; and Eileen Hughes, NP, Nursing Director, Mount Sinai Heart.



▲ Patient Service Associate Chelsea Washington serves heart-healthy food at Mount Sinai St. Luke's.



▲ Leadership and staff from Mount Sinai Heart at Mount Sinai Beth Israel were among the participants at the Community Heart Health Fair at Phillips Ambulatory Care Center. From left: Shirley Escala, RN, MS; Yuri Gomez; Brad Wallick; Lehi Pilarte; Ramesh Gowda, MD, Director, Peripheral Interventions, Cardiac Catheterization Laboratory; and Boris Molchanskiy, MSN, RN



▲ William Schwartz, MD, Assistant Professor of Medicine (Cardiology), discusses ways to maintain cardiovascular health during a Mount Sinai Queens National Go Red for Women Day event held at Church of the Redeemer, Astoria.



▲ Shubhika Srivastava, MD, Associate Professor, Pediatric Cardiology, hugs pediatric cardiac patients Siobhan O'Shea, left, and Michelle Cassata during the Annual Valentine's Day Reunion Party hosted by Kravis Children's Hospital at Mount Sinai. Young patients, their families, and their physicians reunite every year to celebrate their healthy hearts.

Forbes Honors Pioneering Neurosurgery Resident

Eric Oermann, MD, a pioneering Neurosurgery second-year resident at Icahn School of Medicine at Mount Sinai, has been named to the fourth annual *Forbes* “30 Under 30” list as one of the nation’s top Health Care innovators for 2015. According to *Forbes*, the honorees “reflect the best and the brightest in health care and science.”

Dr. Oermann, 29, leads multidisciplinary studies—driven by mathematics and data science—to develop algorithms to better predict individual survival rates among patients with advanced Stage IV cancers, which would also help physicians to determine personalized, more effective treatments for these patients.

“The question, ‘How long do I have to live,’ is a very profound one, yet it is one of the questions that doctors are the worst at answering,” says Dr. Oermann, who earned his MD and a bachelor’s degree in mathematics from Georgetown University. He also spent a year at the University of North Carolina studying “machine learning,” the cutting-edge subset of data science that forms the basis of predictive analytics. “This was a pivotal moment: becoming ‘fluent’ in both mathematics and medicine has been key to my success in research,” he says.



Eric Oermann, MD, uses cutting-edge mathematical science to develop algorithms to help better predict survival rates in cancer patients.

“Dr. Oermann is incredibly bright and highly motivated to solve neurosurgery’s fundamental problems,” says Joshua B. Bederson, MD, Professor and Chair of Neurosurgery, Mount Sinai Health System. “It’s astonishing how far Dr. Oermann has been able to advance his research mission while deftly handling the heavy clinical load of our bustling neurosurgery service.”

This is the second Mount Sinai innovator

to be recognized by *Forbes*. In 2013, Jillian Shapiro, a third-year student at Mount Sinai’s Graduate School of Biomedical Sciences, was named in its “30 Under 30” list for her significant discovery of a new molecular pathway. Dr. Shapiro received her PhD in microbiology from Mount Sinai in 2013 and is currently attending Fordham University School of Law. She intends to practice patent law upon graduation from Fordham.

› Restorative Surgery That Patients Can Smile About *(continued from page 1)*

common cold sore that causes the facial nerves to become swollen and inflamed. Within a few months, many individuals recover completely and spontaneously. But for those who do not and are unable to smile again, the results can be devastating without surgery.

“Smiling is a universal form of human communication, and it affects our emotional state,” says Dr. Rosenberg, who is also a founding member of the Mount Sinai Health System’s Facial Nerve Paralysis Program. “When patients lose this ability to communicate, they are losing a basic human function. It is harder to feel engaged with others.”

The new approach improves upon alternative techniques by delivering quicker and more effective results. It allows direct innervation of the facial nerve branches involved in smiling. Regeneration occurs over a period of six to twelve months, restoring the patient’s ability to smile, eat, and speak.

With the new cranial nerve transfer, the surgeon makes a very small incision near the front of the ear and then sews together the facial nerve and masseter nerve, which are in close proximity to each other. According to Dr. Rosenberg, the results have been promising and no side effects have been reported. Due to the limited

number of surgeons currently performing the procedure, he says patients have come to Mount Sinai from across the Northeast.

Rachel Lewis, a special education teacher from Chester County, Pa., who lost the use of the left side of her face to Bell’s palsy three years ago, is beginning to see improvement following the surgery she had at The Mount Sinai Hospital in December. “This surgery has given me a sense of hope—something I haven’t felt in years,” she says. “Dr. Rosenberg gives me honest and straight answers, but he also provides me with that comfort factor. I always come to office visits with a long list of questions, which he takes as much time as needed to answer.”

EVENT

Child Health Research Day

The Seventeenth Annual Child Health Research Day will feature keynote speaker Joel J. Hirschhorn, MD, PhD, the Concordia Professor of Pediatrics and Professor of Genetics, Harvard Medical School; and poster and oral presentations.

Abstract Submissions Deadline: Friday, March 6 Noon

Event: Thursday, April 16

8 am – 1 pm

The Mount Sinai Hospital Campus

Grand Rounds / Neurology

Richard Ransohoff, MD, Senior Biogen Research Fellow, Neuroimmunology, Biogen Idec, presents “Microglia: A Re-Introduction.”

Wednesday, February 25

8 – 9 am

**The Mount Sinai Hospital Campus
Hess Center, Davis Auditorium**

Grand Rounds / Medical Education

Kelly Caverzagie, MD, Associate Dean for Educational Strategy, University of Nebraska College of Medicine, presents “Achieving the Promise of Competency-Based Medical Education.”

Wednesday, February 25

Noon – 1 pm

**The Mount Sinai Hospital Campus
Hess Center, 5-101**

Seminar Series / The Friedman Brain Institute

Adam Kepecs, PhD, Associate Professor, Cold Spring Harbor Laboratory, presents “The Behavioral Repertoire of Identified Neuron-Types during Decision-Making.”

Thursday, February 26

1 pm

**The Mount Sinai Hospital Campus
Hess Center, Seminar Room A**

Seminar Series / Pharmacology and Systems Therapeutics

Larry A. Sklar, PhD, Director, Center for Molecular Discovery, University of New Mexico, presents “From High-Throughput Flow Cytometry to Small Molecule Discovery and Translational Medicine.”

Friday, February 27

11 am – Noon

**The Mount Sinai Hospital Campus
Icahn, Room 11-84**

March is Colorectal Cancer Awareness Month

The nurses and staff of The Mount Sinai Hospital’s Endoscopy Center are hosting an educational event about preventing colon cancer. Participants can pick up literature and other giveaways; talk with nurses, physicians, nutritionists, and endoscopy staff about colon cancer; and schedule an appointment for a screening colonoscopy. The Colon Cancer Challenge Foundation will provide a 30-ft inflatable “Rollin’ Colon,” a walk-through educational model of a colon. Individuals are encouraged to wear blue, which is the color of colon awareness month. For more information, visit www.coloncancerchallenge.org, or call 212-241-6277.

Wednesday, March 4

8 am – 3 pm

**The Mount Sinai
Hospital Campus
Guggenheim Pavilion**

Sponsors include: the Colon Cancer Challenge Foundation; Dr. Henry D. Janowitz Division of Gastroenterology and the Endoscopy Center; Division of Colon and Rectal Surgery; and Ms. Devlyn Stanley, a Mount Sinai endoscopy technician, in memory of Geneva Stanley and Louis A. Stanley.

ANNOUNCEMENT

Diabetes Prevention Program

The Department of Preventive Medicine, through the Mount Sinai Selikoff Centers for Occupational Health, is sponsoring a lifestyle program for Mount Sinai employees aimed at reducing the risk for type 2 diabetes. It is a year-long program with 16 weekly Thursday sessions and six monthly follow-up sessions. To learn more and to register, contact Justine.Piontek@mssm.edu or 212-824-7123.

Registration deadline: Friday, February 27

Sessions begin: Thursday, March 5

Noon - 12:45 pm

**The Mount Sinai Hospital Campus
CAM Building, West Tower
Third Floor Conference Room**



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