

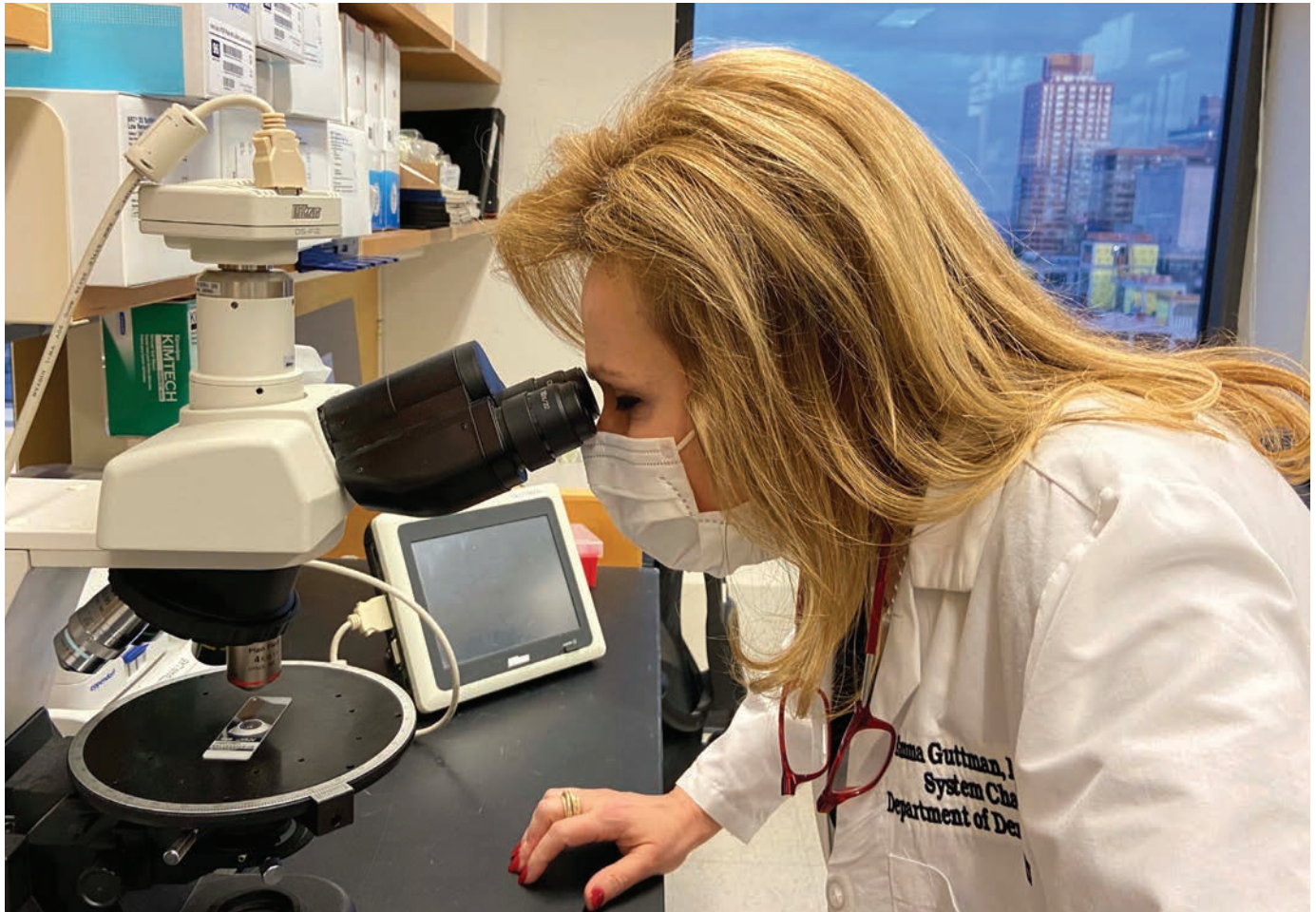
The Kimberly and Eric J. Waldman

Department of Dermatology

2023



Mount
Sinai



Dedicated to delivering exceptional, comprehensive patient care and advancing the science of dermatology through research and education.



Emma Guttman-Yassky, MD, PhD
 Waldman Professor and System Chair
 The Kimberly and Eric J. Waldman
 Department of Dermatology
 Director, Center of Excellence in Eczema
 Director, Laboratory of Inflammatory
 Skin Diseases
 Icahn School of Medicine at Mount Sinai

As I celebrate my second year as Chair of the Kimberly and Eric J. Waldman Department of Dermatology, I am especially proud of the progress we made in 2022 and our continuing achievements, which I am pleased to share with you in this report.

We delivered comprehensive and superior dermatological care with more than 96,200 patient visits, and we conducted groundbreaking, translational research with \$12.4 million in research funding and the expansion of the scope of our clinical trials. Our efforts continue to position the Department at the world's epicenter of research in inflammatory diseases such as eczema/atopic dermatitis, alopecia areata, scarring alopecia, psoriasis, vitiligo, hidradenitis suppurativa, and keloids, as well as many other skin diseases.

The Department of Dermatology was **ranked No. 1 in Research Output on Doximity Residency Navigator**. The highly coveted ranking is taken from the largest survey and CV analysis of current residents and recent alumni. This is the first year that research output has been measured, and we are proud to have obtained the **No. 1 position**, ahead of so many premier institutions.

We recruited top faculty talent in 2022, including many who conduct innovative science. They will facilitate and expand our efforts in groundbreaking research as we continue our upward trajectory as a leader in the United States and throughout the world. Our recruits include:

Randie Kim, MD, PhD, has joined as an Attending Dermatopathologist and Attending Dermatologist at the rank of Associate

Professor of Dermatology. Dr. Kim is on the editorial board of the *Journal of the American Academy of Dermatology* and has co-authored numerous publications, some recognized as top-cited and game changers in dermatology. Her research focuses on cutaneous oncology and utilizes artificial intelligence and advanced computational techniques to identify skin cancers such as melanoma early, to improve patient outcomes.

Jessica Labadie, MD, FAAD, Director of Lasers and Cosmetic Surgery, will focus her practice on placing a strong emphasis on compassionate, patient-centered care and individualized treatment plans. A highly trained expert in lasers and cosmetic and surgical dermatology, Dr. Labadie also specializes in vulvar dermatology and women's health. Dr. Labadie recently completed an American Society for Dermatologic Surgery (ASDS) Cosmetic Dermatologic Surgery Fellowship at SkinCare Physicians in Chestnut Hill, Massachusetts; finished a two-year term on the board of the American Society for Laser Medicine and Surgery as the resident representative; and is currently serving on the board of the Association of Academic Cosmetic Dermatology.

Melissa Levoska, MD, FAAD, joined as Assistant Professor of Dermatology with a clinical focus on cutaneous oncology as well as cosmetic dermatology, dermatologic surgery, vitiligo, and hidradenitis suppurativa. Her primary research interests lie in epidemiology and outcomes of high-risk skin cancers. She has published more than 30 peer-reviewed articles across a variety of journals within and outside of dermatology, and her work has received national recognition in various news outlets. Dr. Levoska won the KCK Compassionate and Humanistic Care Award at her graduation from Case Western Reserve University School of Medicine, which was given for excellence in resident teaching/mentorship.

Peter Hashim, MD, MHS, a fellowship-trained Mohs surgeon, has joined as Director of Skin Cancer Surgery at the Blavatnik Family Chelsea Medical Center. Dr. Hashim completed his dermatology residency, with his final year as Chief Resident, as well as his fellowship training in Mohs micrographic surgery, in our Department. He is actively involved in research and has served as an investigator on more than 30 clinical trials in the treatment of skin cancer, psoriasis, eczema, vitiligo, and alopecia.

We anticipate the opening of our state-of-the-art **Dermatopathology Services Lab**, slated for the end of 2023, will lead to better services for our partners in the tristate area and the expansion of our research in digital dermatopathology and "artificial intelligence."

The **Kimberly and Eric J. Waldman Melanoma and Skin Cancer Center**, under the leadership of **Jonathan Ungar, MD**, continues to offer a rare combination of technologies that allow the most advanced, cutting-edge services in monitoring, diagnosing, and preventing skin cancer. We uniquely offer the VECTRA WB180® system with 3D Total Body Photography. One of only two systems in the New York region, it captures pictures of the entire skin surface at high resolution within seconds, then identifies, tags, and maps all the patient's moles on a three-dimensional avatar. This innovative tool catches skin cancers at the earliest possible stage while avoiding unnecessary skin biopsies.

New initiatives include the launch of our **Alopecia Center of Excellence**, which was funded by a grant of \$5 million, thanks to the generosity of the Pure family and other donors. The Center is the first of its kind to integrate patient care, research, and transformative new treatments in one location. We participate in multiple clinical trials, giving our patients access to the latest therapies not generally available anywhere else. Patient volume has continued to grow as we pursue the most advanced and safest approaches to treating alopecia areata, cicatricial (scarring) alopecia, and other forms of alopecia. **Benjamin Ungar, MD**, has been named Director of the Center.

Another new initiative is the **Mark Lebwohl Center for Neuroinflammation and Sensation**, which was made possible by \$2.35 million of philanthropic dollars from our generous donors. Under the direction of **Brian S. Kim, MD, MTR, FAAD**, a world-renowned expert in neuroinflammation, itch, and inflammatory skin diseases, the Center treats patients with all types of unexplained chronic itch and conducts research to understand skin immunity, inflammation, and sensation.

We are also fostering collaborations within the Mount Sinai Health System with the **Black Family Stem Cell Institute (BFSCI)**, the **Precision Immunology Institute (PriISM)**, and the **Friedman Brain Institute** to further the advancement of the Department's mission.

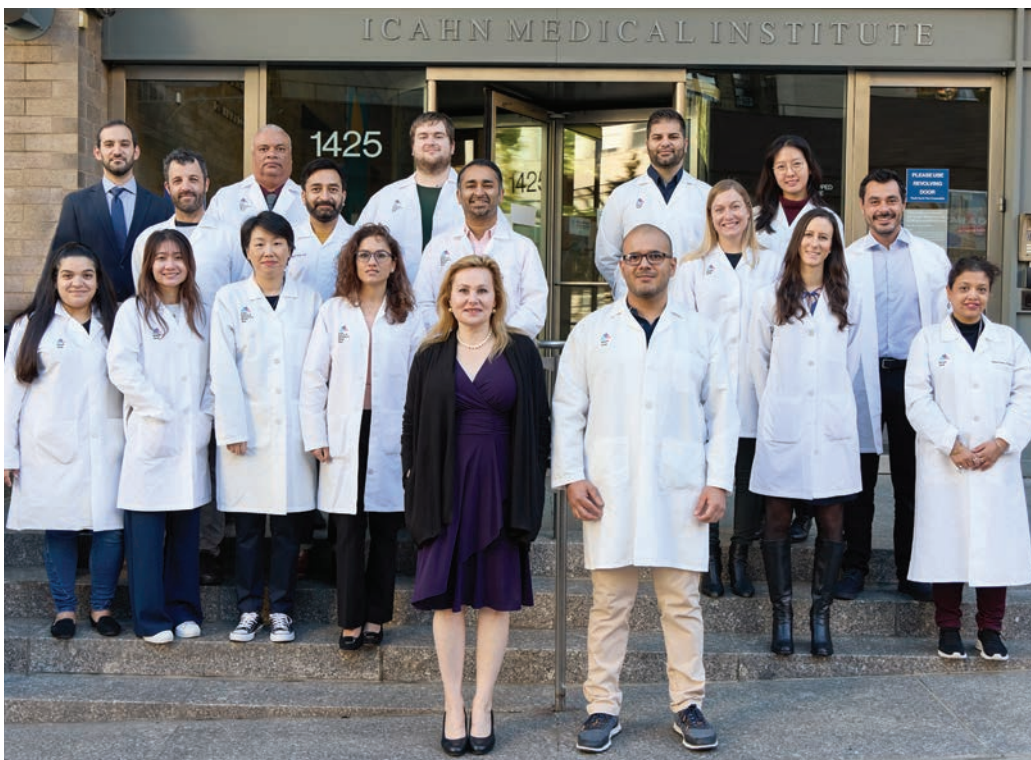
Partnering with the BFSCI, we established the **Skin Biology and Diseases Resource-based Center (SBDRC)** at Mount Sinai, which aims to be a hub for research in skin biology and skin diseases throughout the Mount Sinai Health System. The Center is funded by a \$4 million, five-year National Institutes of Health (NIH) and National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) grant, one of only six NIH/NIAMS grants offered. I am honored to serve as Co-Director of the Center.

We partnered with PriISM and the Friedman Brain Institute to launch the Mark Lebwohl Center for Neuroinflammation and Sensation in early 2022. Aiming to position it as the No. 1 center in the world addressing the study of chronic itch, Dr. Brian S. Kim is leading the way and has recruited renowned researchers **Hongzhen Hu, PhD**, and **Peng Yuan, PhD**, to help grow the Center in 2023.

Additionally, we continue to partner with the **Biologic Treatment Center** at The Mount Sinai Hospital. In addition to giving comprehensive education and support to our patients in need of biologics, the Center also provides a dedicated team advocating for better patient care, facilitating insurance approvals.

Our newly formed Dermatology Advisory Board, with more than 25 members, continues to foster philanthropic growth, supporting and guiding our initiatives with their expertise and generosity. The Board's continued generous support will help us push the boundaries of research and dermatology clinical care with innovative approaches that will provide better outcomes and a brighter future for our patients.

Thank you for reading our annual report, and we look forward to a productive and exciting 2023!



Dr. Guttman (center) pictured with members from the Laboratory of Inflammatory Skin Diseases.

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Alopecia Center of Excellence Offers the Most Advanced Treatments, Bringing New Hope to Patients

Alopecia areata isn't a deadly disorder, but it can be devastating and life-altering, affecting many aspects of patients' lives. Almost 7 million people in the United States live with this disease, an autoimmune condition that causes hair to fall out from the scalp, face, and other parts of the body. "Until recently, there were no Food and Drug Administration-approved treatments for alopecia areata, which meant many patients simply just learned to live with it, which can be devastating to patients as hair is part of the way we look and our identity," says Emma Guttman-Yassky, MD, PhD, System Chair, the Kimberly and Eric J. Waldman Department of Dermatology and Waldman Professor of Dermatology at the Icahn School of Medicine at Mount Sinai.

Dr. Guttman and her team are on a mission to change that with the Mount Sinai Alopecia Center of Excellence, launched in March 2022, through the generous support of the Pure Family. This groundbreaking center is the first of its kind—the only centralized center in the country that brings together compassionate patient care, the most advanced treatments, clinical trials with novel drugs, and groundbreaking research all under one roof. "We really have a unique bedside to bench and back approach," says Benjamin Ungar, MD, the newly appointed Director of the Center.

Dr. Guttman herself stumbled into her research on alopecia areata. Long known as a world-renowned expert on inflammatory skin diseases such as eczema, she was mystified several years ago when she realized that many of those patients also experienced alopecia. Even more surprisingly, when patients with severe eczema were given the biologic drug Dupixent® (dupilumab) as a treatment, their itchy rash not only disappeared—their hair began to grow back, too. "My research revealed that alopecia areata patients actually had type 2 lymphocytes, which are traditionally associated with allergic disease," she explains. "This discovery opened new avenues for research and treatment." A study she published in March 2022 in the medical journal *Allergy* found that the drug worked best in alopecia patients who had a family history of asthma, seasonal allergies, and elevated IgE (a substance that indicates an allergic tendency).



Dr. Guttman treating a patient at the Alopecia Center of Excellence, at the clinical location on 98th Street in New York City.

"This was exciting news because Dupixent is readily available—it's not like doing clinical trials to develop and test a drug from scratch," she says. Our team also showed that after 24 weeks of treatment with Dupixent, only type 2, but not type 1 lymphocytes (that were originally associated with alopecia areata) were inhibited while hair keratins increased, possibly proving the pathogenic role of these cells in alopecia areata, allowing additional treatments to be developed or adapted from the eczema world.

Dupixent has been a game changer for 43-year-old patient Dan Kaplan, who has been living with alopecia areata for a quarter century. For years, he kept the condition under reasonable control with regular cortisone injections, but "it was like playing a game of whack-a-mole at the fair: We'd hit one bald patch and respond to it, then another one would crop up," he recalls. His alopecia got dramatically worse during the

COVID-19 pandemic, when he couldn't get to his dermatologist's office for his shots. By early 2022, he'd lost about half of the hair on his scalp.

Mr. Kaplan despaired, but his doctor had a solution: The doctor referred him to the Mount Sinai Alopecia Center. He met with Dr. Guttman, who examined him and noticed that he had small patches of eczema. She recommended Dupixent to treat both, and Mr. Kaplan began weekly injections of the drug in April 2022. The results were dramatic. "After about two months, I noticed that areas of my scalp that had never responded to cortisone were beginning to grow hair again," he says. Following the treatments, he has had about 95 percent hair regrowth. "When you live with alopecia areata, you always wonder when the other shoe is going to drop and you're going to lose more hair," he says. "I'm so thankful now to be able to go about my day normally, without worrying about that."

Stories like Mr. Kaplan's are commonplace at the Alopecia Center. "What makes us unique is that we all work together as a team, and we can offer the complete spectrum of treatments, from basic treatments to new, cutting-edge treatments to clinical trials that are rarely seen across the United States," says Brian Abittan, MD, Assistant Clinical Professor in Dermatology, Director of Skin and Hair Rejuvenation, and Director of Hair Transplantation. "If there is a viable treatment for someone with hair loss, they can find it at Mount Sinai."

Case in point: The Alopecia Center is also conducting studies in scarring alopecia, a type of alopecia in which the immune system destroys



Alopecia Universalis: baseline vs. week 56 on dupilumab, vertex and side



Alopecia Universalis: baseline vs. week 131 on upadacitinib, back and vertex



Alopecia Totalis: baseline vs. week 196 on dupilumab, back and side



Scarring Alopecia: baseline vs. week 87, on dupilumab

Scarring Alopecia: week 24/open-label start vs. week 48, on breprocitinib

hair follicle cells completely, so that regrowth isn't possible. One promising drug is breprocitinib, a first-in-class drug that inhibits two substances, tyrosine kinase 2 and Janus kinase 1, implicated in alopecia. A 2022 study done by Dr. Guttman and published in the *Journal of Allergy and Clinical Immunology* found that patients who took breprocitinib for 24 weeks showed significant improvement in hair regrowth. "We are so excited about this because up until recently, there were no treatments for scarring alopecia," Dr. Guttman says. "It's awful to have to give a beautiful woman the news that there's nothing to offer her."

Vicky Miller is one of those patients. The 54-year-old began to experience hair loss about two years ago and was referred to the Alopecia Center in 2022 by a neighbor who also had alopecia. She began a trial of breprocitinib in May 2022. "After about twelve weeks, all of a sudden the bald spots on the sides of my head began to fill in," she recalls. "One day there was nothing there, and the next day peach fuzz. I went from 50 percent hair loss to full hair regrowth. I plan to be on this medication for the rest of my life."

While there's no cure yet for alopecia, these new treatment advances make it more

manageable, according to Dr. Guttman. Other cutting-edge treatments for alopecia areata, for example, include the recently FDA-approved Janus kinase (JAK) inhibitor Olumiant® (baricitnib). The Center plans to study Dupixent soon in children with alopecia areata and is investigating other treatment options as well. "We're able to offer our patients access to new, investigational therapies such as novel JAK inhibitors that aren't available anywhere else," says Dr. Guttman.

Recent Innovations Are Helping Patients Now, While Research Advances Hold a Promising Future

The doctors and researchers at the Kimberly and Eric J. Waldman Melanoma and Skin Cancer Center at Mount Sinai are experts in the diagnosis and treatment of all types of skin cancer and leaders in treating melanoma, the deadliest type of skin cancer. Recent innovations in detection and treatment of melanoma are helping patients now, while research on immunotherapy agents, cell types in tumors, cutaneous lymphomas, and high-risk skin cancers holds promise for the future.

Early Detection of Skin Cancer Using VECTRA

The Waldman Center is one of only two centers in New York City with a VECTRA WB180® system, which creates a 3D photographic map of a patient's whole body. "The VECTRA has proven to be extremely useful in providing a high level of monitoring for patients with a skin cancer history, or at high risk of developing skin cancer," says Jonathan Ungar, MD, Assistant Professor of Dermatology and Medical Director of the Waldman Melanoma and Skin Cancer Center. "It allows us to compare skin lesions over time, which enables us to identify changes very early—often earlier than a skin exam alone." The images also can be used by patients at home to assist with self-exams, allowing them to accurately identify new lesions and seek treatment.

Innovative Surgery for Melanoma

Treatments for melanoma depend on the stage of the tumor but usually begin with removing the tumor and a margin of healthy cells around it. Mohs surgery involves removing tissue in layers or stages, then examining under the microscope during surgery to be sure all the cancerous tissue has been removed. This procedure can now be used for melanoma with the help of immunohistochemistry (special tissue stains). In the past, the tissue was sent to a pathology lab and the tissue would be examined, with margins being reported in several days. Now using special stains for melanoma, Mohs surgery can be performed, allowing the tumor to be removed and the incision closed the same day. This is especially significant on

areas of the body that are functionally and cosmetically important, such as the face.

"Without immunohistochemistry during Mohs surgery, examining the tissue has been done in the pathology lab over days," says Jesse Lewin, MD, Associate Professor of Dermatology, System Chief of the Division of Dermatologic and Cosmetic Surgery and Program Director for the Micrographic Surgery and Dermatologic Oncology Fellowship Program. The patient's wound had to be bandaged until the lab results came back, he says, and then the patient returned for removal of more skin cancer if there was still any left behind, or reconstruction of the wound if the skin cancer was removed with the first excision. "With Mohs surgery, we can ensure that the melanoma is fully removed in real time under the microscope, and then repair the wound on the same day, providing optimal cure rate, and excellent cosmetic and functional outcomes," Dr. Lewin says.

New Research Projects

Some types of melanoma and other cancers that spread to the skin require treatment with immunotherapy agents, a type of treatment that uses substances made by the body or in a laboratory that helps the immune system fight cancer. Nicholas Gulati, MD, PhD, Assistant Professor of Dermatology and Director of the Early Detection of Skin Cancer Clinic and the Oncodermatology Clinic, is a physician-scientist with a special interest in immunotherapy agents. Dr. Gulati recently won the Daneen & Charles Stiefel Investigative Scientist Award for Melanoma Research from the American

Skin Association to pursue research on the topic. "We proposed a project in which we combine two different immunotherapy agents to treat skin metastases: immune checkpoint inhibitors given by infusion into a vein (IV) and an ointment known as diphencyprone (DPCP) given topically," Dr. Gulati says. "Immune checkpoint inhibitors have a lot of promise in that they activate the body's immune system to attack cancer, but they unfortunately can have substantial toxicity as well. The hope is that by using these two agents together, we will get a stronger immune attack on the cancer cells, and minimize damage to the normal tissues."

Andrew Ji, MD, Assistant Professor of Dermatology, is a physician-scientist with a lab focused on understanding how intercellular communication within the skin cancer tumor microenvironment contributes to heterogeneity in the tumor and to treatment resistance. "One of the most exciting things we're working on is a new spatial transcriptomics technique called Multiplexed Error Robust Fluorescence in Situ Hybridization (MERFISH)," he says. "Prior techniques can only target a couple of genes at a time and measure the expression levels in intact tissue. But this platform allows up to 500, and soon 1,000, genes to be measured simultaneously. This will allow us to identify which cell types are closest to the tumor cells and communicating directly with them, and which molecules are mediating this cross talk."

Dr. Ji's research is concerned with squamous cell skin cancers in immunosuppressed patients, especially those who have had organ transplants. "For some reason, in those patients, squamous cells are much more

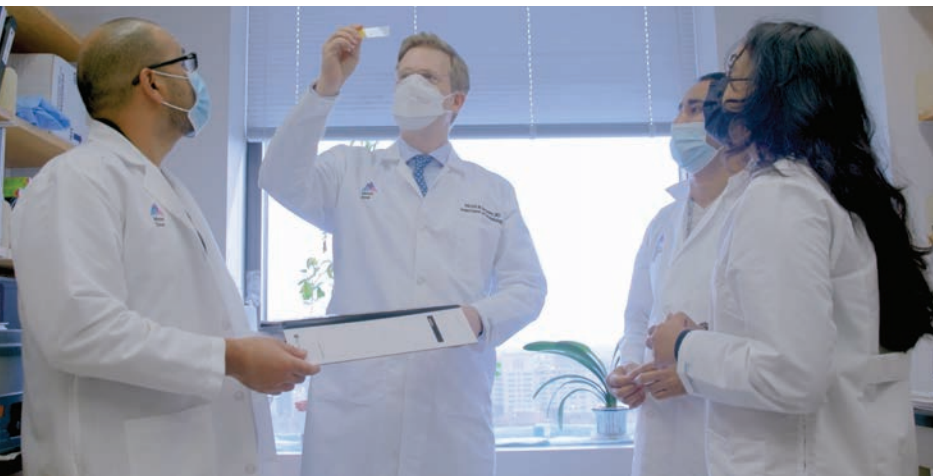


Dr. Jonathan Ungar provides a comprehensive, accurate evaluation when screening for skin cancer at the Waldman Melanoma and Skin Cancer Center.

aggressive,” he says. “We’re studying what’s missing or present in these patients to cause that growth.”

Patrick Brunner, MD, Associate Professor of Dermatology, is a physician-scientist whose research is aimed at understanding cutaneous lymphomas and developing better treatment for these patients.

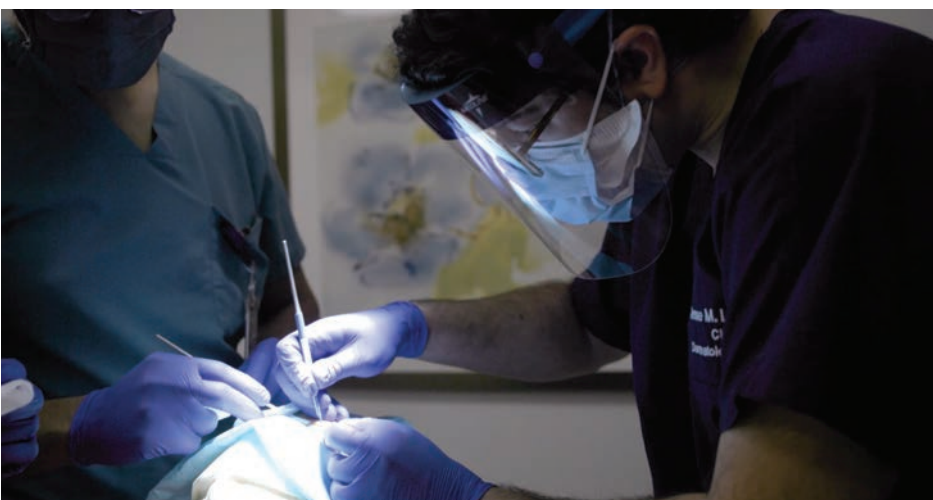
“Primary cutaneous lymphomas comprise a wide variety of diseases, from very slow-growing to aggressive clinical behavior,” Dr. Brunner says. “We are interested in better understanding pathogenic mechanisms leading to this spectrum of diseases, and to provide novel, efficacious, and safe therapies.”



Dr. Patrick Brunner, pictured with researchers at the Brunner Lab, at the Icahn Medical Institute on 98th Street.

Melissa Levoska, MD, FAAD, Assistant Professor of Dermatology, recently joined the Department to practice general dermatology, skin cancer screening, and skin cancer management, including in patients with immune suppression such as post transplantation. Dr. Levoska plans to continue her research using skin cancer databases including the National Skin Cancer Database and the Surveillance, Epidemiology, and End Results Program to look at outcomes of patients with high-risk skin cancers.

The Center’s researchers also partner with Mount Sinai scientists at The Tisch Cancer Institute, the Department of Pathology, and the Precision Immunology Institute at Mount Sinai. This multidisciplinary approach furthers innovation in melanoma and skin cancer research, which positions Mount Sinai as a world leader in the field and holds promise for a brighter future for our patients.



Dr. Jesse Lewin offers Mohs micrographic and reconstructive surgery for skin cancers that occur on cosmetically sensitive areas of the body, particularly the face.

New Treatments for Hair Loss Focus on Prevention, Regeneration, and Natural-Looking Transplantation

An abundance of new options now exist for treating hair loss that were not available 10 or 15 years ago. These treatments can be tailored to a patient's specific needs and preferences. "Advancements in regenerative medicine have widened our scope of treatment options for hair loss and skin rejuvenation," says **Brian Abittan, MD, FAAD**, Assistant Clinical Professor in the Kimberly and Eric J. Waldman Department of Dermatology, Director of Skin and Hair Rejuvenation, and Director of Hair Transplantation at Mount Sinai.

Hair loss falls into two broad categories: hair loss caused by an underlying medical condition and androgenetic alopecia, or pattern hair loss. The Department has made significant breakthroughs in treating the medical causes, specifically with alopecia areata. There is no cure for pattern hair loss. "We focus on two areas, number one is slowing down the progression of hair loss, and number two, trying to regrow some of the hair that has been lost," Dr. Abittan says.

There are multiple topical therapies and oral therapies that have been in use for many years. Dr. Abittan develops a treatment plan for each patient that considers the patient's daily routine for topical treatments and their comfort level with taking pills, which can have systemic effects. Recently there have been breakthroughs in regenerative medicine, a fairly new field in which therapies attempt to promote the regrowth, repair, or restoration of cells. In this case, regenerative medicine takes growth factors and formulates them to assist the promotion of hair growth and hair maintenance.

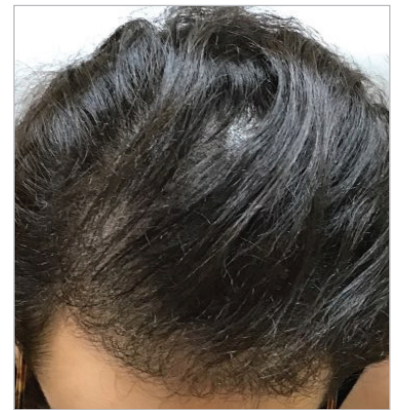
"Platelet-rich plasma (PRP) is a treatment that has been used in orthopedics for 25 years or more, but it's new to hair loss," Dr. Abittan says. "The beauty of this treatment is that it's from your own body." PRP is extracted from a patient's own blood. Within the platelets are growth factors that help to keep hair follicles alive. "We inject it into the areas of the scalp that are susceptible to hair loss or that haven't started to experience hair loss. It can be an adjunct to more traditional therapies, or it can stand alone."

Other more experimental treatments are being tested, such as stem cells and exosomes. "We're definitely gaining a better understanding of hair-specific uses for these regenerative medicines and also the best way to administer them," Dr. Abittan says.

Hair transplantation is a permanent solution to hair loss that has changed dramatically since its introduction in the 1970s and 1980s. The "old method" is known as follicular unit transplant (FUT), which harvested hair grafts from a strip removed from the back of the scalp. "We now use follicular unit extraction (FUE)," Dr. Abittan says. "We



Before and After: Topical and Oral Treatments



Before and After: PRP (Platelet-Rich Plasma) Treatments



Before and After: Hair Transplantation-FUE

We can harvest individual hairs from a larger area and implant them more densely for a look that's natural in appearance.

—Dr. Brian Abittan

take each hair out individually and implant it individually. There are no stitches and there is no excision. The recovery is much easier. We can harvest individual hairs from a larger area and implant them more densely for a look that's natural in appearance.”

COVID-19 has increased interest in hair rejuvenation and transplantation for two reasons, according to Dr. Abittan. COVID-19-related hair loss has been reported as an after effect of the virus, probably due to fever or stress. Also, remote working via Zoom calls or other videoconferencing services has forced many people to look at themselves on camera much more frequently than before the pandemic, making them more aware of a receding hairline or thinning hair.

Interest in prevention of hair loss also is increasing. “Every single hair follicle is valuable,” Dr. Abittan says. “We’re seeing a lot of interest in young people in their late teens or early twenties. They want to prevent or at least slow down what they’ve seen in their dad or mom.”

These are exciting times for treating hair loss. “The bottom line is, we don’t have a cure yet, but we have newer advancements and many more avenues available to mitigate hair loss or increase growth,” Dr. Abittan says.

Jessica Labadie, MD, FAAD, Named Director of Lasers and Cosmetic Surgery

Jessica Labadie, MD, FAAD, joined our team in September of 2022 as Assistant Professor of Dermatology and Director of Lasers and Cosmetic Surgery. “The field of lasers and cosmetic surgery is bright and ever changing, constantly leading to new technologies and updated indications. This ultimately leads to better cosmetic results and more personalized treatment options for our patients,” says Dr. Labadie. The goal is to put Mount Sinai at the forefront of these developments through research, resident education, and individualized patient care.

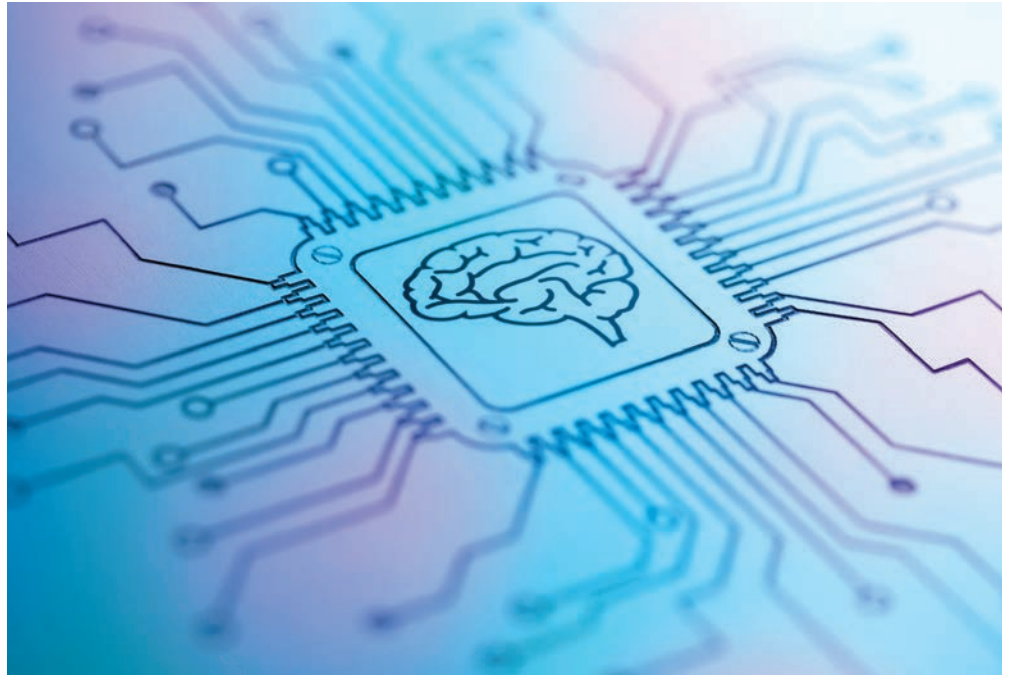
A highly trained expert in lasers and cosmetic and surgical dermatology, Dr. Labadie also specializes in vulvar dermatology. “We are excited to partner with Mount Sinai’s Department of Obstetrics, Gynecology, and Reproductive Science to establish a vulvar dermatology clinic to treat patients with various vulvar dermatoses such as lichen sclerosus and lichen planus,” says Dr. Labadie.

In choosing a career in laser and cosmetic surgery, Dr. Labadie chose “not only to help my patients live disease-free, but also to help them live comfortably in their own skin.”



Dermatology Research Increasing Its Use of Artificial Intelligence

Artificial intelligence (AI) usage in dermatological research and diagnosis has increased over the past few years. Because dermatology involves pattern recognition and interpretation of large amounts of clinical data to render diagnoses and to make treatment management decisions, AI applications are highly relevant to dermatological diseases.



Clinical studies and trials are increasingly collecting a myriad of clinical and molecular patient data to support disease and drug understanding. A common practice uses biomarkers to predict efficacy of a drug in clinical trials. Artificial intelligence algorithms are widely used for this task.

“In recent research, AI methods have been an excellent tool for supporting the identification of relevant biomarkers in skin diseases such as atopic dermatitis and psoriasis. I have also applied AI to combine imaging biomarkers that could accurately distinguish melanoma from benign melanocytic lesions,” says Joel M. Correa da Rosa, PhD, Assistant Professor of Dermatology at the Icahn School of Medicine at Mount Sinai.

Machine learning is a branch of AI that uses data and algorithms to imitate the way humans learn, gradually improving accuracy. Machine learning can help predict clinical and clinical trial outcomes based on data gathered from high-volume systems. “I apply machine learning to cluster patients according to the similarity in their molecular profile, clinical response, and/or quality-of-life outcomes,” says Dr. Correa da Rosa.

There are some challenges in integrating AI into dermatological research. For example, there is a need for large numbers of patients and data sets, and the fact that data sharing is only possible if patients give consent for this purpose. Data analysts and dermatologists must maintain privacy and safety when handling sensitive data such as genomics and imaging. Moreover, the use of AI in clinical trials should be stated clearly in the informed consent, so patients are apprised of how their information is being used.

AI should supplement but not replace the experience and judgment of the dermatologist. Patients’ needs should be evaluated holistically in the context of age, gender, personal and family medical history, and other factors that are not well integrated in current algorithms.

Multidisciplinary collaborators within Mount Sinai are increasingly using AI to foster joint efforts. Our bioinformatics team has recently interacted with other labs in Mount Sinai when writing grant proposals that include AI methods for data analysis. Plans are in the works for our Department

to collaborate with the new Multidisciplinary Training Area (MTA) in the PhD in Biomedical Sciences program: Artificial Intelligence and Emerging Technologies in Medicine (AIET) at Icahn Mount Sinai.

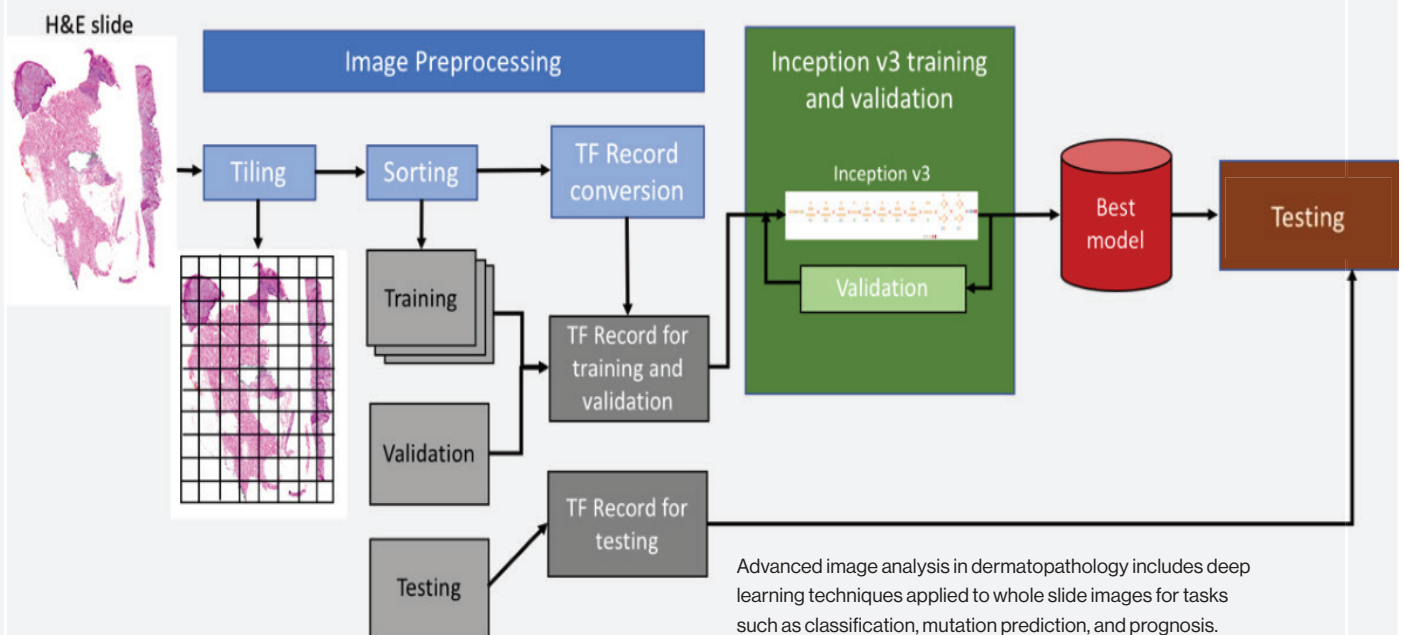
AI has the potential to accelerate translational research in Dermatology. Decision-making within clinical trials research is likely to continue to integrate AI methods with human judgment in the future.

Recently there have also been great advances in deep learning technology to classify skin cancers and distinguish malignant conditions (such as malignant melanoma and squamous cell carcinoma) from benign skin conditions. Deep learning is a type of machine learning that examines layers of information, such as pathology sections and clinical pictures; teaching computers to learn by example; and developing an algorithm for benign versus malignant after looking at many photographs and sections, much like humans do. Randie Kim, MD, PhD, Associate Professor of Dermatology, our new dermatopathologist, specializes in artificial intelligence approaches to

Artificial Intelligence to Help Further Dermatopathology Research

With the opening of the new Dermatopathology Laboratory at 525 West 57th Street scheduled for the end of 2023, the Department looks forward to expanding its services to additional partners in the tristate area. The expansion of our research in dermatopathology will be facilitated by Randie H. Kim, MD, PhD, a double boarded dermatologist/dermatopathologist recently recruited from NYU Langone, and holds promise for the future.

Dr. Kim's research focuses on cutaneous oncology and the practices of dermatopathology, with collaboration on projects utilizing artificial intelligence and advanced computational techniques to analyze digitized whole slides of melanoma. Dr. Kim has vast expertise in digital dermatopathology and applications of artificial intelligence and will create standards for slide image archival and develop a digital dermatopathology database for future research.



differentiate benign skin lesions as compared to malignant skin cancers. She uses these approaches to help her clinical and dermatopathology diagnoses, and plans to integrate these approaches in future research studies and grants.

Computer algorithms have been integrated into diagnostics and prognostics. The use of these methods increases accuracy when detecting

skin cancers. In clinical research, AI helps to perform deep phenotyping of patients by collecting data in electronic health records.

AI in dermatology is still in its infancy, and will likely continue to grow in the future, but will first require acquisition of a large volume of high-quality images and other data, as there are many dermatologic conditions with varied clinical presentations.

New Appointees



Jaeyeon Chun, PhD

Assistant Professor, Dermatology



Peter Hashim, MD, MHS

Assistant Professor, Dermatology
Director, Skin Cancer Surgery, Blavatnik Family Chelsea Medical Center



Patricia Heller, MD

Assistant Clinical Professor, Dermatopathology



Randie H. Kim, MD, PhD

Associate Professor, Dermatology/
Dermatopathology



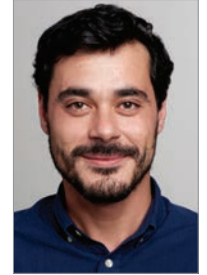
Jessica Labadie, MD, FAAD

Assistant Professor, Dermatology
Director, Lasers and Cosmetic Surgery



Melissa Levoska, MD, FAAD

Assistant Professor, Dermatology



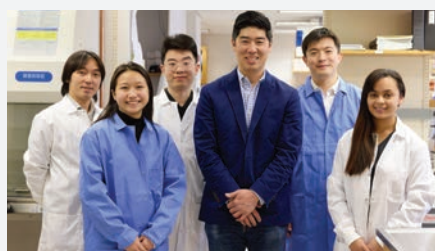
Daniel Lozano-Ojalvo, PhD

Assistant Professor, Dermatology

Mark Lebwohl Center for Neuroinflammation and Sensation Advances Multidisciplinary Research in Neuroimmunology

Under the direction of Brian S. Kim, MD, MTR, FAAD, the Mark Lebwohl Center of Neuroinflammation and Sensation was launched in 2022 through \$2.35 million in philanthropic support made possible by our generous donors. The Center is conducting research to understand skin immunity, inflammation, and sensation.

The Lebwohl Center brings together skin biology, immunology, and neuroscience. By leveraging its seminal scientific advances, coupled with outstanding clinical expertise, the state-of-the-art research center provides world-class clinical care for patients with chronic itch and other sensory disorders. The ultimate goal is to deliver therapeutic innovations through fundamental new science and cutting-edge clinical trials to respond to the unmet needs of patients with sensory and neuroinflammatory disorders.



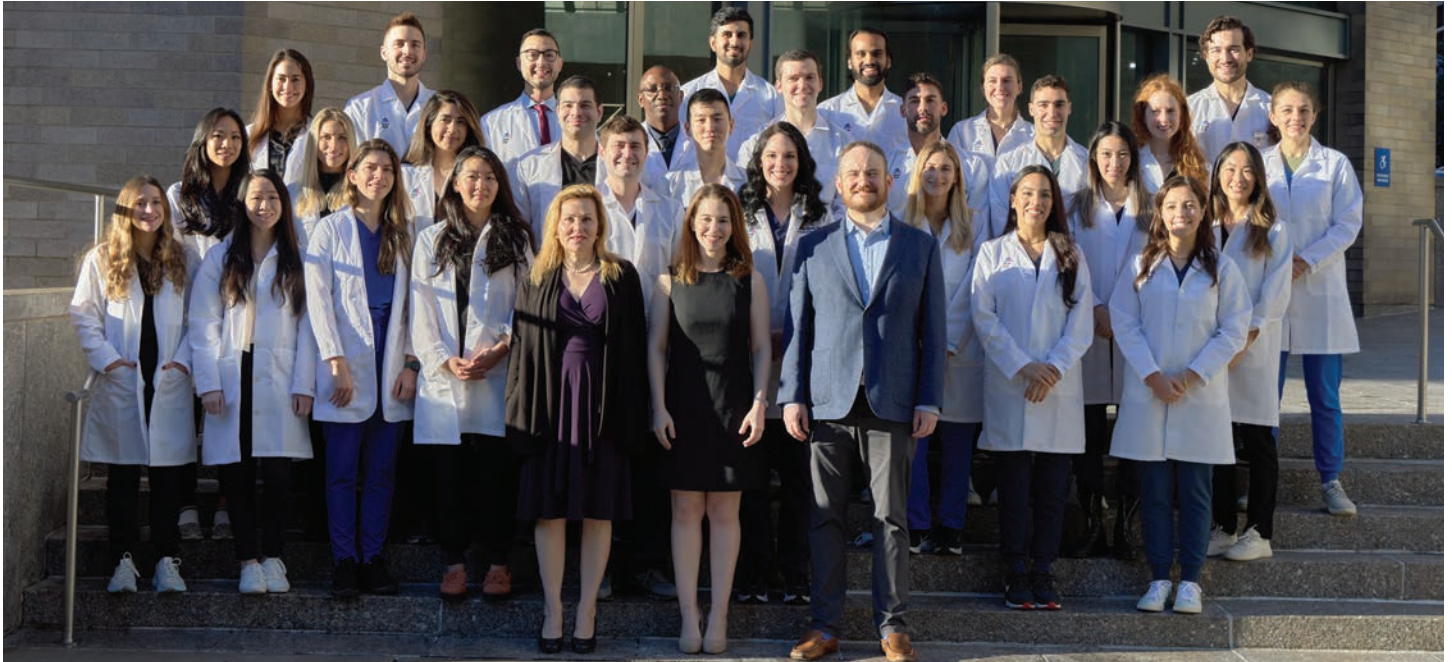
Dr. Brian S. Kim (front and center) pictured with the team at the Mark Lebwohl Center of Neuroinflammation and Sensation.

The Center has recruited a number of leading neuroscientists including, most recently, Hongzhen Hu, PhD, as scientific director. Dr. Hu, who will join Mount Sinai in 2023, is funded by multiple NIH R01 grants focusing on gaining fundamental insights into how distinct sensory modalities are encoded in the skin.

Dr. Hu will work alongside Dr. Kim and partner with Paul Kenny, PhD,

at the Nash Family Department of Neuroscience, and Eric Nestler, MD, PhD, at the Friedman Brain Institute, to bring together research across multiple areas in Dermatology and Neuroscience within Mount Sinai. The goal will be to rapidly advance multidisciplinary innovation in neuroinflammatory and sensory disorders. Dr. Hu and Dr. Kim will seek to recruit many new investigators to Mount Sinai with the aim of building the world's leading program in neuroimmunology.

Meet Our Trainees

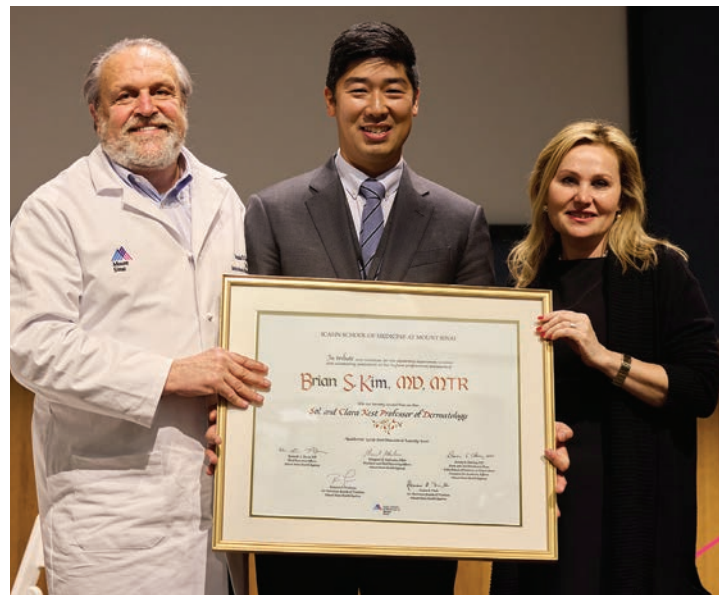


Emma Guttman-Yassky, MD, PhD, Waldman Professor and System Chair (center left), with Alexandra Golant, MD, and Jonathan Ungar, MD, are pictured with the Department's residents and fellows. The Dermatology Residency offers trainees the opportunity to work in a department that sees tens of thousands of patients each year. As a result, residents treat patients with a wide variety of dermatological conditions and have access to many research opportunities. The Department was recently ranked No. 1 in Research Output on Doximity Residency Navigator. This ranking has enhanced the reputation of our program, which will continue to attract top-quality candidates in the future.

Endowed Professorship Award Ceremony

Brian S. Kim, MD, MTR, FAAD, was awarded the Sol and Clara Kest Professor of Dermatology Endowed Professorship at a ceremony with Dennis S. Charney, MD, Anne and Joel Ehrenkranz Dean of the Icahn School of Medicine at Mount Sinai and President for Academic Affairs for the Mount Sinai Health System, and Emma Guttman-Yassky, MD, PhD, Waldman Professor and System Chair of Dermatology on October 31, 2022. The ceremony took place in the Goldwurm Auditorium at the Icahn Medical Institute with faculty, staff, and friends of Dr. Kim's in attendance.

Special thanks to our donors Sol and Clara Kest and family who established this professorship to advance dermatological research and patient care.



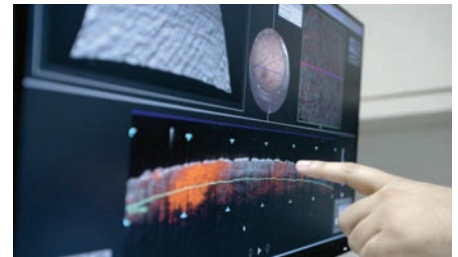
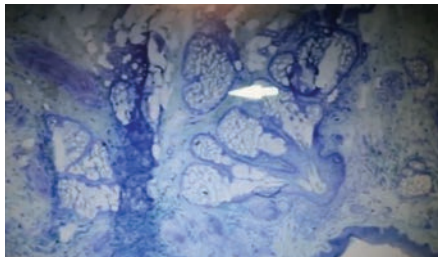
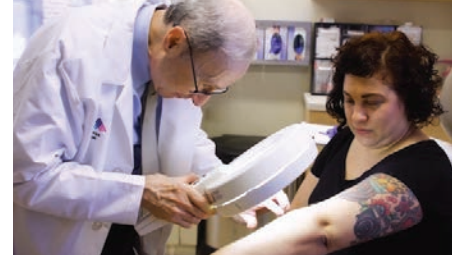
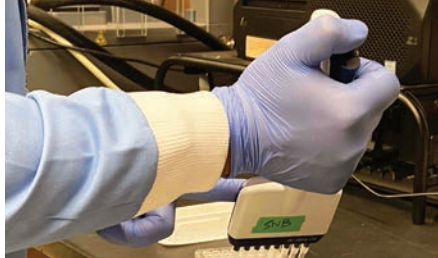
Pictured left to right: Dr. Dennis S. Charney, Dr. Brian S. Kim, and Dr. Emma Guttman-Yassky.

Dermatology Advisory Board Aims to Guide and Support Innovation and Growth

As leaders and visionaries, the members of the Dermatology Advisory Board generously lend their time, talent, and philanthropic resources to support the endeavors of the Kimberly and Eric J. Waldman Department of Dermatology under the leadership of Emma Guttman-Yassky, MD, PhD, System Chair and Waldman Professor of Dermatology at the Icahn School of Medicine at Mount Sinai. They are innovative thinkers who understand the transformational impact their contributions can have on medical breakthroughs.

Dr. Guttman and the Board seek to advance skin health care in a myriad of dermatological conditions including skin cancers, hair loss disorders (such as alopecia areata), atopic dermatitis, psoriasis, vitiligo, and keloids. Their focus includes skin cancer prevention and cures; prevention of eczema development and progression; anti-aging and rejuvenation mechanisms; hair regrowth and regeneration; and increasing our understanding of skin diseases in skin of color patients. The Department is uniquely positioned to spearhead therapeutic innovation and discovery, using artificial intelligence to further discoveries, and translating the discoveries in the laboratory into new treatments that are currently being tested in patients. This is a true bedside to bench and back approach that ultimately will benefit millions of patients around the world.

The Board members value the opportunity to advance the mission of the Department by serving as strong advocates and pushing the boundaries of research and clinical care. With the unwavering support of this group, the Department will continue to grow and expand in an upward trajectory. With their guidance and philanthropic commitment, the Department looks to expand the strong clinical foundation and research accomplishments built over the last 40 years, with the goal of creating a brighter, healthier future for our patients.



Members of the Dermatology Advisory Board

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Robert Buka, MD

Elissa Cullman

Loren Eng

David Granson

Leon Kircik, MD

Herbert Kozlov

Michael Lee

Jody A. Levine, MD, and

Elie Levine, MD

Will Manuel

Catherine Orentreich, MD

David Orentreich, MD

Jonathan Pure

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Steven Schnur and

Eliane Braz-Schnur

Eric Schweiger, MD

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John Weinberg

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Carol F. Zale, MD, and

David Zale

Honorary Board Member/
Scientific Advisor:

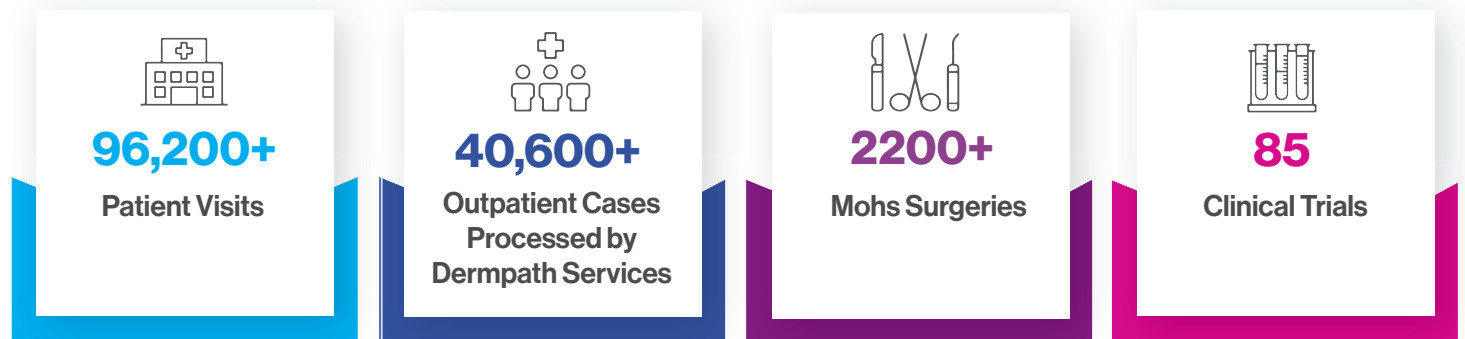
George Yancopoulos, MD, PhD

George Yancopoulos, MD, PhD

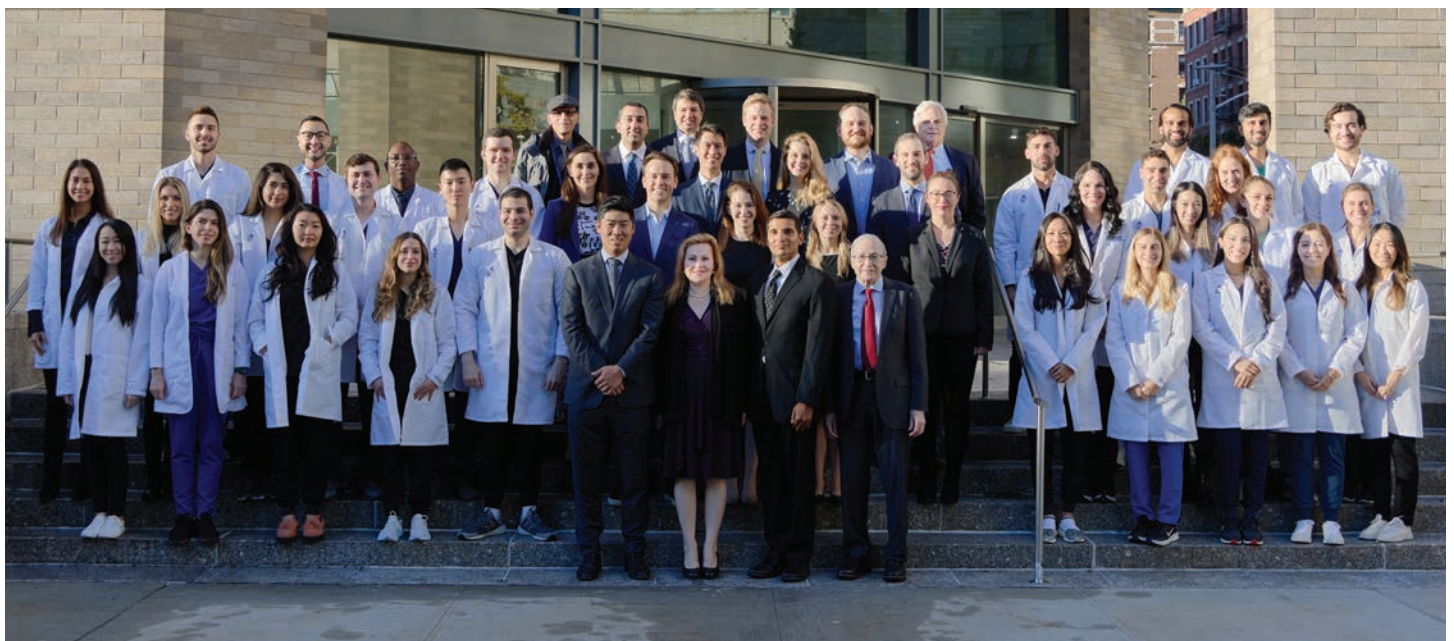
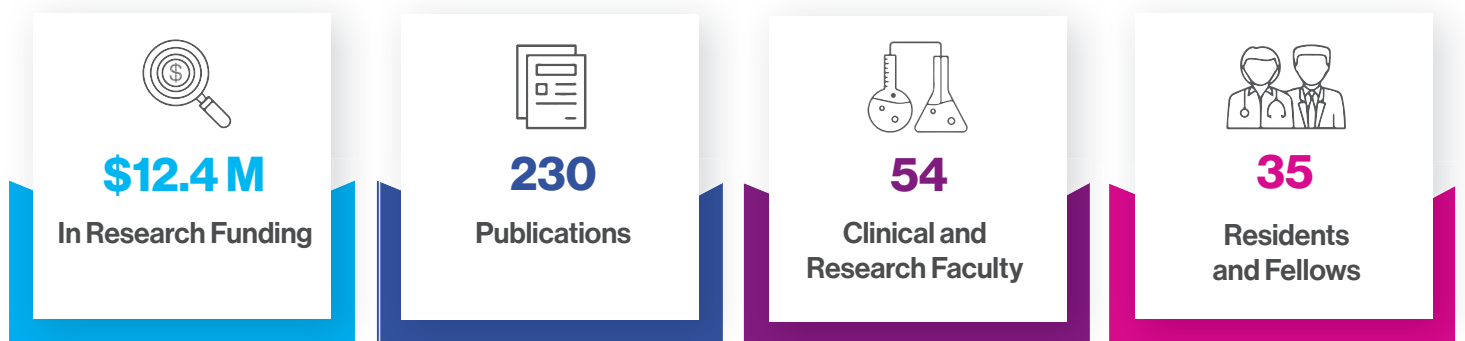
Department of Dermatology

Quick Facts 2022

Clinical Statistics



Research & Faculty Statistics



Dr. Guttman (front and center) pictured with the Department's faculty, residents, and fellows.

Mount Sinai Health System

Icahn School of Medicine
at Mount Sinai

The Mount Sinai Hospital

Mount Sinai Beth Israel

Mount Sinai Brooklyn

Mount Sinai Morningside

Mount Sinai Queens

Mount Sinai South Nassau

Mount Sinai West

New York Eye and Ear Infirmary
of Mount Sinai



**Mount
Sinai**

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For inquiries, please email: dermatology@mountsinai.org

Visit: www.mountsinai.org/care/dermatology



Scan this QR code
or visit us at
www.mountsinai.org/care/dermatology.

The safety of our community is our highest
priority; some images in this report were taken
prior to February 2020.