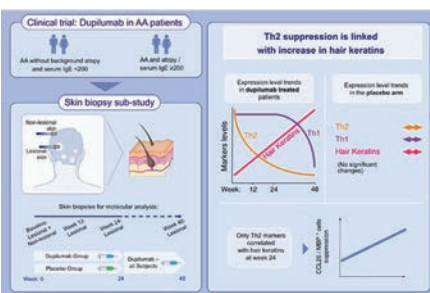
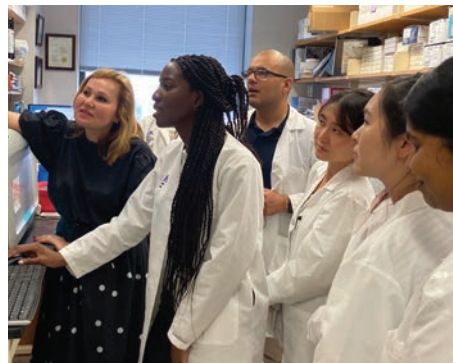


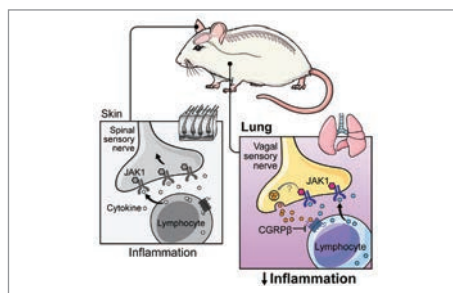
The Kimberly and Eric J. Waldman

# Department of Dermatology

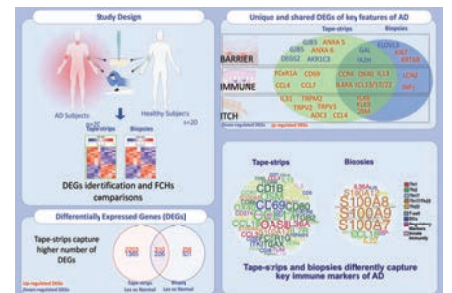
2024



See details on research in alopecia areata on page 9.



See details on multidisciplinary research in skin biology, immunology, and neuroscience on page 12.



See details on research in tape strips on page 9.

Delivering superior, comprehensive care, fostering research and therapeutic development, and creating a better future for patients with dermatologic diseases.

I am pleased to share with you this new report on the many accomplishments at the Kimberly and Eric J. Waldman Department of Dermatology during 2023.

With more than 100,000 patient visits and more than \$24 million in research funding, we conducted groundbreaking, translational research and expanded our clinical trials scope. We have also received large grants from foundations and pharmaceutical companies, a significant accomplishment that was supported by our new recruits and our current faculty, along with our newly expanded federal/foundation grants team. Our endeavors continue to position the Department at the world's epicenter of research in inflammatory diseases, including as eczema/atopic dermatitis, alopecia areata, scarring alopecia, psoriasis, vitiligo, hidradenitis suppurativa, and keloids, as well as many other skin diseases.

We recruited top faculty talent in 2023, many of whom do innovative science. They will help to expand our efforts in groundbreaking research and contribute to our upward trajectory as a U.S. and world leader. Our recruits include:

**Jonas Adalsteinsson, MD, PhD**, has joined as an Assistant Professor and Director of Autoimmune Blistering Diseases, and Director of Dermato-epidemiology. Dr. Adalsteinsson's clinic will focus on autoimmune bullous diseases and skin cancers. Dr. Adalsteinsson sits on the Mohs use committee of the American Academy of Dermatology, and his research focus has been on skin cancers and associated risk factors.

**Courtney Ensslin, MD**, is a double board certified dermatologist and Mohs micrographic surgeon and an Assistant Professor within the Division of Dermatologic and Cosmetic Surgery. Dr. Ensslin's research is focused on the integration of technology and innovation in dermatologic surgery to improve patient outcomes.

**Justine Fenner, MD**, completed a pediatric dermatology fellowship at Columbia University before we recruited her back to Mount Sinai where she completed her residency in our program and served as Chief Resident. Dr. Fenner will direct a clinic that focuses on pediatric and adolescent dermatology.



**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

**Jordan Talia, MD, FAAD**, joined as Assistant Professor, Director of the Skin of Color Center, and Director, Complex Medical Dermatology Clinic. He completed a fellowship in complex medical dermatology at the Brigham and Women's Hospital, and Dana-Farber Cancer Institute. Dr. Talia has co-authored numerous articles in peer-reviewed medical journals and is a fellow of the American Academy of Dermatology.

**Ahuva Cices, MD**, is a recent graduate of our dermatology residency program where she served as Chief Resident. Dr. Cices joined as Assistant Professor, Dermatology, and Director, Clinic for Cutaneous Manifestations of Inflammatory Bowel Disease, and Director, Cosmetic Dermatology for Patients with Autoimmune Disease. By establishing specialty clinics in these areas, Dr. Cices will help to fill a void in patient care.

**Hongzhen Hu, PhD**, a leading, internationally recognized neuroscientist, joined as Scientific Director of the Mark Lebwohl Center for Neuroinflammation and Sensation, and Professor, Dermatology and Neuroscience. Bringing multiple NIH RO1 and other grants, Dr. Hu will work alongside Brian S. Kim, MD, MTR, FAAD, Vice Chair of Research and Director of the Mark Lebwohl Center, and partner with Paul Kenny, PhD, Chair of the Nash Family Department of Neuroscience, and Eric Nestler, MD, PhD, Director of the Friedman Brain Institute,

to bring together multiple areas across Dermatology and Neuroscience. Dr. Hu has set up his lab at the new Discovery and Innovation Center in Midtown West and is helping to recruit many new investigators to Mount Sinai with the aim of building the world's leading program in neuroimmunology.

**Michel Enamorado, PhD**, provides a holistic perspective in his investigative work, through his training in immunology, neurobiology, and host-microbiota interactions. Bringing major NIH funding, Dr. Enamorado will investigate how immune cells regulate peripheral nervous system regeneration, and what are consequences of this neuroimmune interaction for tissue physiology and repair. He has published more than 18 peer-reviewed research articles in highly regarded journals such as *Cell*, *Journal for ImmunoTherapy of Cancer*, *Science*, *Nature Immunology*, and *Frontiers in Immunology*.

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 melanoma and other skin cancers. More than 1,000 biopsies were avoided in the past year due to the noninvasive technologies employed by the Waldman Center, and more than 20,000 skin cancers were treated. The Center uniquely offers 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 at three-dimensional avatar. This innovative tool catches skin cancers at the earliest possible stage while avoiding unnecessary skin biopsies. The Center aims to continue to explore multiple advanced technologies and novel techniques to allow for early detection and cure of skin cancers.

Our **Alopecia Center of Excellence (ACOE)** is up and running, providing more than 8,200 patient visits a year. The Center was made possible by a \$5 million commitment from our donors, the Pure family, together with several other families. It is the first-of-its-kind

centralized center integrating compassionate patient care, translational and basic research, and transformative new treatments developed through clinical trials for alopecia. **Benjamin Ungar, MD**, as Director of the Center, strives to expand research and develop novel treatments. Noteworthy is an expected \$3.9 million NIH/NIAID (Emma Guttman as Lead PI) UO1 grant to study dupilumab in pediatric patients with alopecia areata, with funding being initiated in the first quarter of 2024. Research from the Center is identifying new molecules that may be pathogenically associated with alopecia areata, creating the rationale for their future targeting in clinical trials, to increase therapeutic options for patients with alopecia areata. We also are offering novel studies to patients with scarring alopecia, which may result in new treatments for these diseases that pose a large unmet need.

Under the direction of **Brian S. Kim, MD**, the **Mark Lebowitz Center for Neuroinflammation and Sensation** is gaining momentum with increased research funding from both federal and industry sources. Its establishment was made possible by \$4.7 million of philanthropic dollars raised, and it continues to conduct groundbreaking research to understand the connections between skin immunity, inflammation, and neurosensation. The investment in the Lebowitz Center by our generous donors and Mount Sinai was quite visionary. That support foresaw the explosive growth in the new field of neuroimmunology, which has recently received validation from the Paul G. Allen Family Foundation granting Mount Sinai \$10 million over four years for the Allen Discovery Center (ADC) for Neuroimmune Interactions at Icahn Mount Sinai. Its new location at the Discovery and Innovation Center in Midtown West places it at the epicenter of Mount Sinai's new biotechnology hub. This is the first time that an Allen Family Foundation grant has been given to an institution in New York City, and we are happy to host the Center and this collaborative effort between several New York institutions (including Icahn Mount Sinai, Weill Cornell Medicine, NYU Langone Health, and Yale School of Medicine).

We are in the final stages of transitioning Dermatopathology into our Department with 10 percent growth in patient volume in 2023. Since 2019, we have added more than 30 percent of our total patient volume with

increased turnover times and expansion of our client roster. Our **Dermatopathology Services Lab** will open at a new location in the fall of 2024. We are recruiting candidates with expertise in digital dermatopathology and applications of Artificial Intelligence (AI), with the goal to develop a dermatopathology database for the purposes of future research.

Our **Mohs Micrographic Surgery** unit is the only academic center in New York City and one of only a few globally to have implemented MART-1 staining for early melanoma, a unique same-day service, with approximately 1,100 Mohs cases completed in 2023 by Jesse M. Lewin, MD, FACMS. This number reflects a huge increase from only 450 cases a few years ago.

Our Department was awarded a highly coveted **T32 grant** for "Research Training in Systems Skin Biology" in 2023. Beyond federal support, this grant brings national prestige to our Department and Icahn Mount Sinai, creating an intersectional science training program for both predocs and postdocs, and we are initiating this year a 2+2 and/or 2+1 residency research track program.

The Department of Dermatology at Mount Sinai was **ranked No. 1 in research output by Doximity's Residency Navigator for the second year in a row**. The highly coveted ranking is taken from the largest survey and CV analysis of current residents and recent alumni. Additionally, the number of residency applicants increased by 300 percent in 2023. Almost 100 applicants gave us a gold signal with many more giving a silver signal, attesting to the desirability of our program and its increased ranking.

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

Our Dermatology Advisory Board continues to foster philanthropic growth with more than 25 members. (A list of our board members can be found on page 14.) The Board's continued generous support and expertise will help us push the boundaries of research and dermatology clinical care, bringing better outcomes to our patients.

Thank you for reading about our journey, and we wish you all a prosperous and productive 2024!

4. Innovative Research to Achieve Better Outcomes for Patients with Melanoma and Skin Cancers
7. Artificial Intelligence May Help Improve Melanoma and Skin Cancer Early Detection and Treatments
8. Alopecia Center of Excellence Advances Diagnosis, Treatment, and Research
9. Using Tape Strips Advances Research in Atopic Dermatitis and Other Skin Diseases
10. Revolutionizing Cosmetic Dermatology Through a Unique Center for Skin Aging
12. New Centers Are Advancing Multidisciplinary Research
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• Meet Our Trainees
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15. Department of Dermatology Quick Facts 2023

# Innovative Research to Achieve Better Outcomes for Patients with Melanoma and Skin Cancers



Dr. Jonathan Ungar uses the Vectra® system to deliver 360-degree full-body patient imaging at the Waldman Melanoma and Skin Cancer Center.

Each year, the doctors and researchers at the Kimberly and Eric J. Waldman Melanoma and Skin Cancer Center at Mount Sinai diagnose and treat thousands of patients with all types of skin cancer, including melanoma. The goal, says Jonathan Ungar, MD, Assistant Professor of Dermatology, and Medical Director of the Center, is not just to achieve the best possible outcomes for these patients, but also gain insights that result in earlier diagnosis and more effective treatment overall.

“We are able to do this at a level that is relatively unmatched based in part on the volume of patients we see and the state-of-the-art imaging and analysis technologies we have invested in to identify and monitor lesions among patients,” says Dr. Ungar. “I think we are using these technologies in increasingly innovative ways that other centers may not yet be using them.”

The Waldman Center was one of the first centers to invest in the Vectra® WB180 system, which can deliver 360-degree full-body patient imaging in minutes. It was also among the first to adopt diagnostic technologies that enable “bladeless” biopsies, such as reflectance confocal microscopy (RCM) and optical coherence tomography (OCT). That early adoption has enabled Dr. Ungar

and his colleagues to identify ways to use them together to significantly enhance detection, assessment, and monitoring of lesions among patients.

“Instead of conducting noninvasive biopsies of each lesion of concern using RCM, which is a time-consuming process, we are using Vectra imaging to zero in on lesions that have changed in a way that is potentially meaningful and then test them,” Dr. Ungar says. “That is more practical for us and for our patients because we are able to eliminate unnecessary biopsies and focus our attention on high-yield lesions.”

## MART-1 Immunostaining With Mohs Surgery

As Dr. Ungar leads the effort to enhance identification of lesions of concern, Jesse Miller Lewin, MD, FACMS, is refining the Waldman Center’s approach to treating early-stage melanoma, specifically using Mohs micrographic surgery. During Mohs surgery, tissue is resected in stages and microscopically analyzed to confirm that the cancerous tissue has been completely removed. Using melanoma antigen recognized by T cell (MART-1) immunohistochemical staining, Dr. Lewin is



Dr. Lewin is refining the Waldman Center's approach to treating early-stage melanoma, specifically using Mohs micrographic surgery.



Dr. Brunner provides excellent patient care and focuses on conducting research in targeted treatments for cutaneous lymphomas.

able to visualize the margins of the melanoma during surgery, resulting in more effective treatment and better tissue conservation among patients.

“We know that patients with melanomas above the neck were more likely to have an upstaged lesion or an incomplete resection,” says, Dr. Lewin, Vice Chair of Surgical Operations, System Chief of the Division of Dermatologic & Cosmetic Surgery, and Program Director for the Micrographic Surgery and Dermatologic Oncology Fellowship Program. “This suggests surgeons may remove narrow margins on cosmetically sensitive areas, which can lead to inadequate sampling for diagnosis, or incomplete removal. By performing Mohs with MART-1 immunostaining, we are able to remove the melanoma, analyze it, and confirm it is fully removed before we repair the wound. That results in a better cosmetic outcome for our patients while reducing the risk for incomplete resection and recurrence.”

### Immunotherapy Research

The spirit of innovation also guides immunotherapy research being conducted by Nicholas Gulati, MD, PhD, at the Waldman Center. He is leading a clinical trial to assess the potential of administering a topical immunotherapeutic agent—diphencyprone (DPCP)—to enhance the efficacy of immune checkpoint inhibitors, the standard of care for treatment of skin cancers. To date, one patient has completed treatment, and Dr. Gulati says the clinical response

was encouraging. But it is the collection of skin biopsies and blood samples that is being conducted over the course of the study that he believes could be transformative in immunotherapeutic approaches to skin cancer.

“Immunotherapy is increasingly becoming a pillar of cancer treatment,” says Dr. Gulati, Assistant Professor of Dermatology, Director of the Early Detection of Skin Cancer Clinic, and Director of the Oncodermatology Clinic. “But there are considerable gaps in our understanding of its efficacy. By looking at these biopsies and blood samples, we can gain more insights on how the immune system fights cancer, thus filling in those gaps and making this relatively new arena of cancer treatment more effective.”

*“We will be able to help more patients with personal or familial history of melanoma and other skin cancers in ways that change their lives.”*

—Jonathan Ungar, MD

**BEFORE**



**AFTER**



Before and after photos from the first patient to complete the clinical trial. The bumps on the patient's scalp represent skin metastases.

## Immunotherapy in Skin Cancers Including Melanoma Shows Promising Results

Immune checkpoint inhibitors, which use the patient's own immune system to attack cancer cells, are effective treatments for patients with advanced melanoma and other skin cancers, but can lead to serious side effects. "In an ongoing clinical trial for patients with melanoma and other skin cancers that have advanced disease and skin metastasis, we are combining immune checkpoint inhibitors (administered intravenously) with a topical ointment called DPCP which when applied to the skin lead to a notable immune response, but without having internal side effects as with immune checkpoint inhibitors. We have been able to show that adding this topical therapy leads to quicker and better disappearance of the skin cancers than immune checkpoint inhibitors alone," says Dr. Gulati.

At the same time, Dr. Gulati and his team are doing studies in the laboratory on skin cancer tissue and blood samples from these patients to better understand how exactly the immune system can be used against melanoma and other skin cancers.

"We are also studying rashes caused by immune checkpoint inhibitors in the laboratory, as the skin is the most common organ to have side effects from these therapies. Many different skin rashes are caused by immune checkpoint inhibitors, including eczema, psoriasis, lichen planus, bullous pemphigoid, alopecia areata, and prurigo nodules. These skin toxicities are usually treated by oral steroids such as prednisone, which have many side effects and may interfere with the ability of immune checkpoint inhibitors to effectively treat melanoma and other cancers," says Dr. Gulati. "A better understanding of these skin toxicities will lead to targeted treatments that are safer and more effective than what we currently can offer patients."

## JAK Inhibitor to Treat Lymphoma

Patrick M. Brunner, MD, is also looking at the efficacy of targeted treatments for skin cancers. In a first-of-its-kind clinical trial, he is assessing the potential of using a Janus kinase (JAK) inhibitor—an immune modulating agent that is used to treat chronic inflammatory skin conditions such as eczema and psoriasis—to treat cutaneous lymphomas. Over the course of the trial, a total of 20 patients with cutaneous lymphomas will receive a JAK3 inhibitor for six months, followed by an observational period to see how long the skin lesions will remain in remission.

"It is very difficult to get rid of these lymphoma cells completely," says Dr. Brunner, Associate Professor of Dermatology, and Director of the Cutaneous Lymphoma Clinic. "The goal is to effectively put these cells to sleep so that they become inactive over the long term. If the trial is successful, then we will expand the study further."

## New Approaches to Skin Cancer Research

But what if it were possible to learn the language of cells that promotes malignant tumor growth? That is what Andrew L. Ji, MD, Assistant Professor of Dermatology, is working to understand. He is exploring cell communication in the context of cutaneous squamous cell carcinoma (cSCC), specifically among individuals who have undergone organ transplantation.

Dr. Ji has discovered an invasive cSCC subpopulation that communicates with, or manipulates, nonmalignant cells to promote tumor growth. Using innovative single-cell and spatial technologies, he is profiling tumors from organ transplant recipients to better understand how this communication occurs. "The goal is to generate a large cohort of patient tissue profiles that serve as a blueprint for all the communication pathways that are happening," Dr. Ji says. "Once we complete our analysis of this cohort, we can start testing the most promising pathways to see if we can block that communication and thus block the aggressive behavior of these tumors."

Jonas Adalsteinsson, MD, PhD, Assistant Professor of Dermatology, conducts research on how environmental factors affect skin cancer risk. "For example, certain medications such as hydrochlorothiazide can accentuate skin cancer risk," says Dr. Adalsteinsson.

As the Waldman Center's researchers continue to advance diagnosis and treatment, they are planning for what comes next. Dr. Ungar envisions the development of new technologies, such as artificial intelligence tools, that can mine new insights from the vast data the Center is collecting.

"The more research we do, the more patients we treat, the more knowledge we gain—all of that will lead to earlier detection and new interventions that could reverse tumor growth or prevent recurrence," Dr. Ungar says. "That means we will be able to help more patients with personal or familial history of melanoma and other skin cancers in ways that change their lives."

*Aiming to better understand how exactly the immune system can be used against melanoma and other skin cancers.*

# Artificial Intelligence May Help Improve Melanoma and Skin Cancer Early Detection and Treatments

Artificial intelligence (AI) has enormous potential for diagnosing and treating melanoma and other skin cancers. When it comes to diagnosis, dermoscopy, confocal microscopy, optical coherence tomography (OCT), pathology, and whole-body imaging are all areas where AI can have a great impact in improving accuracy of skin cancer diagnosis.

The Kimberly and Eric J. Waldman Department of Dermatology at the Icahn School of Medicine at Mount Sinai is working to leverage technology, specifically machine learning, to enable us to provide our patients the best care possible, both before and after diagnosis.

“Utilizing our various imaging technologies, and other data, we aim to develop algorithms that can not only identify individuals who are at high risk of skin cancer, but specific skin lesions that are at high risk. This would be done before a dermatologist ever looks at them, so that we can focus our attention on those lesions that pose the greatest threat,” says Jonathan Ungar, MD, Assistant Professor, Dermatology, and Medical Director of the Waldman Melanoma and Skin Cancer Center. AI has the potential to create models that will assist clinicians with the classification of these lesions into high- vs. low-risk categories.

The biggest challenge when creating AI models is having enough data to create a high-quality model. “We are currently working on collecting enough data to create such models. As an example, the Vectra, our whole-body imaging device, can potentially be used to detect high-risk lesions by comparing sets of images taken at different times, to give us information on what lesions are evolving in a concerning way and indicating which lesions have a higher chance of having malignant vs. nonmalignant potential,” says Jonas Adalsteinsson, MD, PhD, Assistant Professor, Dermatology, and Director of Dermato-epidemiology and of the Autoimmune Blistering Diseases Clinic.

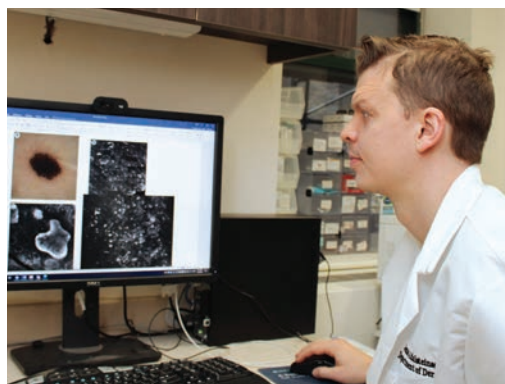
When putting patients on cancer therapy, doctors currently have no reliable way to tell which ones will have their cancer respond, and which ones will not. They also do not know which patients will develop side effects from the therapy, and these side effects can be life-threatening, or force the patient to stop their cancer therapy altogether.

“We are generating data on the expression of thousands of genes and proteins in the skin of cancer patients before and while they undergo therapy, using noninvasive tape strips that only remove the outer layers of the skin and do not leave a scar. With the assistance of AI, we hope to identify a gene or protein biomarker (or signature) that can tell us which treatment to use for which patient,” says Nicholas Gulati, MD, PhD, Assistant Professor, Dermatology, and Director of the Early Detection of Skin Cancer Clinic and the Oncodermatology Clinic.

As a major clinical trials and translational research center in



Dr. Gulati is generating data on the expression of thousands of genes and proteins in the skin of cancer patients and hopes to use AI to help tell which treatment is best for which patient.



Dr. Adalsteinsson is working on gathering enough data to create high-quality AI models.

inflammatory skin diseases, the Department is uniquely positioned to investigate AI's capabilities in predicting treatment responses from gene expression captured through skin biopsies as well as minimally invasive sampling methods, such as tape strips and blood draws. Our researchers have already published several papers demonstrating the ability of single and combined biomarkers to discriminate between healthy skin, atopic dermatitis, and psoriasis in both children and adults, with preliminary explorations of cutaneous single- and two-gene classifiers in predicting clinical responses to systemically administered drugs.

With increasing incorporation of tissue sampling into clinical trial protocols for diseases such as alopecia areata, hidradenitis suppurativa, and atopic dermatitis, the Department is continuing to build upon our database of clinical and transcriptomic/proteomic data collected at baseline and over time with treatment. We anticipate utilizing sequencing data and the processing power of AI to elucidate biomarkers predictive of treatment response.

We hope to use gene expression and other biomarker data to help tailor treatment approaches. Feeding this data into an appropriately trained AI would help guide the selection of better treatments targeted to specific patient needs and improve patient outcomes.

# Alopecia Center of Excellence Advances Diagnosis, Treatment, and Research

About two percent of people worldwide have alopecia areata, an autoimmune skin disease that causes hair loss in circular, coin-shaped patches on the scalp. This condition often first appears in childhood, with 40 percent of people developing symptoms before the age of 40. While it is not a life-threatening condition, it can be devastating to live with this disease, says Emma Guttman, MD, PhD, Waldman Professor and System Chair of Dermatology and Immunology at the Icahn School of Medicine at Mount Sinai. Up until 2022, there were no treatments approved by the Food and Drug Administration (FDA) for severe alopecia areata. “Many patients simply just learned to live with it,” Dr. Guttman adds.

Thankfully, new drugs for alopecia areata have begun to gain FDA approval, including one in 2023. Today, Dr. Guttman and her team are on a mission to create even more options through Mount Sinai’s Alopecia Center of Excellence.

Launched in March 2022 through the generous support of the Pure family, the Center is the first of its kind—the only centralized center in the country that brings together compassionate patient care, the most advanced treatments, and clinical trials with novel drugs.

“Mount Sinai is uniquely positioned to take the lead on groundbreaking research in alopecia areata,” says Benjamin Ungar, MD, Director of the Center. This is due to two main reasons, he notes: “The motivated patients who come to Mount Sinai seeking help, as well as a fantastic team of researchers working together to identify new treatment targets and design clinical trials to establish new treatments.” There are exciting developments to come out of the Center this year.

## Addressing Alopecia Areata in Children

Pediatric alopecia areata affects about 1 in 1,000 children and teens. While the condition generally presents similarly in children and adults, an earlier onset in life can be associated with a worse prognosis, in terms of both severity and response to treatment. “This condition has a tremendously negative psychological impact on many people who suffer from it, and those difficulties can be unique in the pediatric population compared with adults,” adds Dr. Guttman. About half of teens report that they’re embarrassed by their hair loss, for example, and another 40 percent say that they’ve been bullied, according to the National Alopecia Areata Foundation.



That is why Dr. Guttman is particularly excited about a prestigious grant the Center expects to be awarded from the National Institutes of Health in 2024 to study the use of dupilumab in children and teens aged 6-17 with severe alopecia areata. “It offers promise and hope for a population in need,” Dr. Guttman says.

Dupilumab is a type of biologic drug called a monoclonal antibody that targets two specific proteins in the body, interleukin-4 (IL-4) and interleukin-13 (IL-13) to regulate the immune response. It was approved to treat atopic dermatitis, or eczema, in adults in 2017. Dr. Guttman first uncovered the link between dupilumab and alopecia areata when she discovered that adult patients with both alopecia and atopic dermatitis who were given the drug also experienced hair regrowth.

“We aim to evaluate dupilumab, which has been shown to be extremely safe in atopic dermatitis and other conditions, as an effective treatment for children with alopecia areata,” says Dr. Guttman. “We understand that it’s important to treat the disease within a few years of its onset, as the longer it goes untreated, the less likely an excellent response to treatment will occur.” The trial will also help to provide more mechanistic insights into alopecia areata, which may spur progress in future research.

## New Drugs Emerging

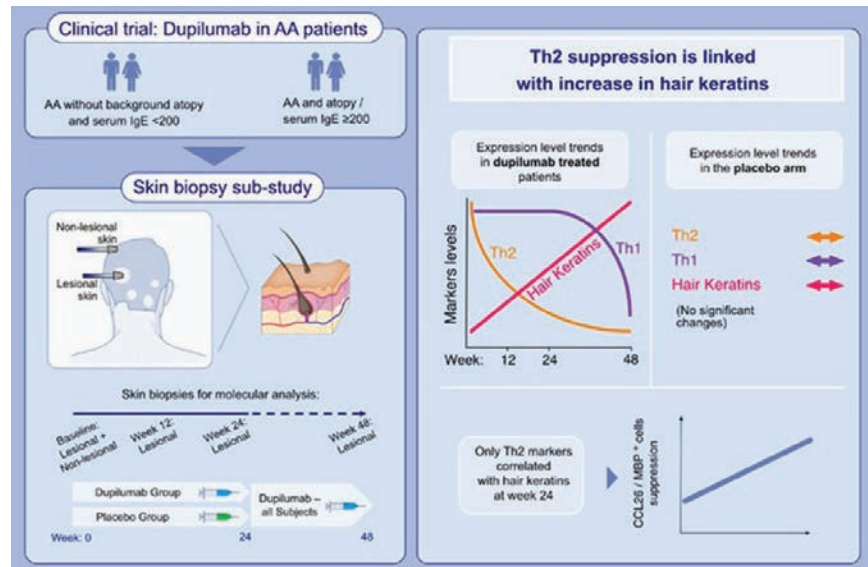
The Center was also involved in clinical trials for two new drugs to treat alopecia areata: ritlectinib, which got FDA approval in June 2023, and deurxolitinib, which is expected to get FDA approval in



the first half of 2024. "It's been an incredible journey for us at Mount Sinai," says Ester Del Duca, MD, an instructor in the Laboratory of Inflammatory Skin Diseases at Icahn Mount Sinai. "It's given us firsthand insights into how these treatments work in real-life patient situations."

In addition, the Center is looking for innovative new drug targets for treatment of alopecia areata that Dr. Guttman and her team are particularly excited about, which stem directly from research done in the lab and may lead to treatments that are approved or in trials for other indications.

As the Center moves into 2024, it's well positioned to be on the cutting edge of research. "All of this involvement places us at the forefront of medical innovation, especially in treating conditions like alopecia areata, where some patients don't respond to existing treatments," stresses Dr. Guttman. "We need fresh solutions and a fresh look at alopecia. The more drugs we study and develop, the better it is for everyone. We also need to better understand the association between alopecia and allergic diseases, to allow for the development of treatment strategies that can work on both patient populations."



This study shows that scalp biomarkers provide evidence of dupilumab efficacy in AA, detected even prior to clinical response, with exclusive correlations between early suppression of Th2 markers and increased hair keratins. These findings strengthen previous reports suggesting a possible role for Th2 cytokines as AA drivers.

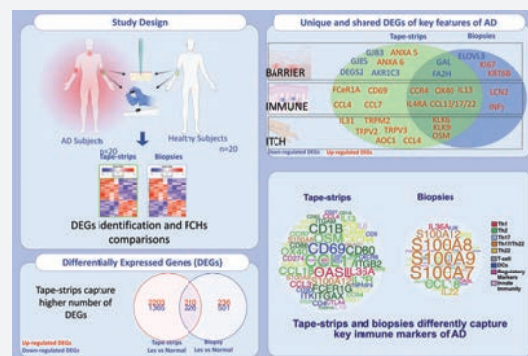
## Using Tape Strips Advances Research in Atopic Dermatitis and Other Skin Diseases

The gold standard for identifying the molecular profile of skin diseases is a skin biopsy. Skin biopsies have limitations because they are invasive, painful, prone to infection, and lead to scarring. Thus, biopsies are often not feasible for longitudinal sampling in clinical trials, or for pediatric populations.

Emma Guttman, MD, PhD, Waldman Professor and System Chair, the Kimberly and Eric J. Waldman Department of Dermatology at the Icahn School of Medicine at Mount Sinai, and her research team have revolutionized the way the skin is sampled. Tape strips, a method that was developed primarily for identifying melanomas, were adapted by Dr. Guttman and her team to study inflammatory skin disease and skin cancers in a noninvasive way. A tape strip can be placed on the skin multiple times, gathering tiny quantities of skin cells each time.

"We thought that we'll only get the profile of the outer layers of the skin but, surprisingly, we also get a window into what happens in layers that are much deeper. Recently, we also showed the phenotype of diseases in which the pathology is very deep, like hidradenitis suppurativa. Tape strips also allow us to understand the phenotype of atopic dermatitis (AD) in children and follow them longitudinally," says Dr. Guttman.

"In one of our latest studies, our team compared head-to-head biopsies and tape strips in the same AD patients. In these



Tape strips and biopsies capture overlapping but distinct features of the AD molecular signature.

intra-patient comparisons, we found that biopsies and tape strips samples are highly comparable," says Dr. Guttman. "In fact, we were able to identify as good, if not better, itch and barrier processes using tape strips." This study also identified a single biomarker (iNOS/NOS2) that completely differentiated AD and psoriasis, which the team has patented.

The research using tape strips was published in many leading medical journals in 2023 and was featured at national and international conferences. "We are now considered the world leaders in this field. We are also expanding the use of tape strips to better understand skin cancers and skin toxicities due to cancer treatments, such as in graft versus host disease (GVHD) and skin toxicity during immunotherapy for melanoma," says Dr. Guttman.

# Revolutionizing Cosmetic Dermatology Through a Unique Center for Skin Aging



Dr. Abittan specializes in new hair rejuvenation techniques as well as continuing to improve ways to tighten and rejuvenate the skin.

Having built a national reputation for cutting-edge clinical and bench research and identifying new therapies around inflammatory skin disease, the Kimberly and Eric J. Waldman Department of Dermatology at the Icahn School of Medicine at Mount Sinai is now applying its vast trove of basic science and clinical expertise to the exciting and rapidly growing field of cosmetic dermatology. To that end, it is developing a comprehensive Center for Skin Aging to bring together its well-honed strengths in research, clinical trials, and the use of innovative procedures like lasers and radiofrequency microneedling to cosmetically treat and rejuvenate the maturing skin of patients.

“We want to revolutionize the approach to cosmetic dermatology the same way we’ve done for medical dermatology,” says Ahuva Cices, MD, Assistant Professor, Dermatology, at Icahn Mount Sinai, who is both a physician and scientist focused on cosmetic therapies for patients with autoimmune diseases. “In order to do that, we need to improve our understanding of what changes occur in normal healthy skin, and here we intend to rely on our basic science colleagues in the Department and the many innovative projects we have in development.”

While cosmetic procedures targeting aging skin are commonplace today, what is noticeably absent is any linkage to

clinical research. Mount Sinai’s dermatology team has a clear head start through its ongoing work at the cellular and molecular level with inflammatory skin disorders like atopic dermatitis, psoriasis, and alopecia areata. Among those researchers is Helen He, MD, a third-year dermatology resident who has already published many molecular and proteomic phenotyping studies on atopic dermatitis and other skin conditions, including the first cutaneous single-cell RNA sequencing profile of that disorder.

“We want to lend that same specificity to the study of skin aging to see if some of the inflammatory changes that occur in the immune system of people with atopic dermatitis, a disease considered by many to be a ‘human model of premature aging,’ are similar to the processes that take place with skin aging,” says Dr. He. “We hope to learn if some of the immunotherapeutics that we use in atopic dermatitis could also change the phenotype in non-disease individuals to improve their skin texture, integrity, and overall appearance. Only by knowing the mechanisms of skin aging can you find specific ways to target it.”

As a critical part of this unfolding research, Dr. He is profiling the maturation process of healthy skin by taking samples across the entire age spectrum, from young children to adults to the elderly. The goal is to uncover biomarkers that correlate well with age and could potentially serve as targets to reverse or modify in some



Dr. Lamb offers the latest treatments, including minimally invasive cosmetic and laser procedures.



Dr. Cices specializes in cutaneous manifestations of inflammatory bowel disease and cosmetic dermatology for patients with autoimmune disease, which serves the unmet needs of patients.

way the skin aging process. In a meaningful break from past practice, investigators are collecting these samples coded with genetic and molecular data—including proteins, lipids, and the epidermal transcriptome—through the noninvasive or minimally invasive technique of skin tape stripping, which does not cause scarring or other morbidity, as do invasive approaches such as skin biopsies. This enables sampling from younger age groups and increases the ability to get larger numbers of samples needed for our increased understanding of aging processes.

“We’ve been able in previous studies to capture the pathologic changes occurring in skin disease through tape strips with an accuracy that’s comparable to if not better than skin biopsies,” observes Dr. He. From this vital information collected both before and after cosmetic treatments, she hopes to get an unprecedented picture of the pathogenic changes occurring in the cutaneous landscape. “We will also couple these studies with blood studies aimed at understanding the ‘inflammaging,’ or inflammation associated with normal aging in healthy people as well as in the context of disease.”

One of those advanced treatments that dermatologists at Mount Sinai are already using—and looking to further improve in the lab—is the ellacor® laser procedure for skin tightening by removing micro-portions of excess or lax skin. This novel anti-aging technique for treating moderate to severe facial wrinkles, which is close to a facelift in its results, is available only at a few dermatology clinics across the United States and is unique in its ability to restore the skin’s structural integrity without invasive surgery and downtime for the patient. Moreover, the procedure is being carefully studied at Mount Sinai in combination with lasers, modulators, injectables, and energy-based techniques as part of research that would intensify under the planned Center for Skin Aging.

“Through research and advanced clinical practice, we continue to improve the ways to tighten and rejuvenate the skin by addressing each level and each layer with the most appropriate and least invasive treatment,” explains Brian Abittan, MD, Assistant Professor, Dermatology, at Icahn Mount Sinai, and Director of Skin and Hair Rejuvenation. “In addition, we’re able to customize facial tightening to all types of skin color, from darker to lighter. And the results we’ve seen in patients across these procedures is transformative.”

Dr. Abittan is further breaking ground for patients in the field of hair rejuvenation through the use of platelet-rich plasma (PRP), and in hair transplantation through a technique known as follicular unit extraction (FUE). PRP has become vital in hair restoration in the case of multiple forms of hair loss at Mount Sinai’s Alopecia Center of Excellence. This advanced technique draws a patient’s blood and spins it rapidly in a centrifuge, isolating the platelet-rich component from the rest of the blood. The content that remains is concentrated levels of a variety of naturally occurring growth factors. The PRP is then drawn into a syringe and injected into areas of the scalp where it’s needed to stimulate natural hair growth and, just as important, maintain it by slowing down further loss. FUE, for its part, eliminates the standard cut in the back of the scalp in favor of harvesting one follicle at a time and methodically implanting them in hair-deficient sections of the scalp. This method decreases recovery time and provides significantly better, more natural appearing results than the previous methods.

“Mount Sinai Dermatology offers comprehensive cosmetic, medical, and surgical interventions and clinical trials under one roof,” emphasizes Dr. Angela Lamb, Vice Chair, Clinical Operations, and Associate Professor, Dermatology.

# New Centers Are Advancing Multidisciplinary Research

The Mark Lebowhl Center for Neuroinflammation and Sensation opened in January 2022 and is advancing multidisciplinary research, bringing together skin biology, immunology, and neuroscience. 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 bring therapeutic innovations through fundamental new science and cutting-edge clinical trials to address significant unmet sensory and neuroinflammatory disorders.

Located at 787 11th Avenue in New York, the Lebowhl Center is part of the growing corridor of medical and biotechnology research in Midtown on the west side of Manhattan. Mount Sinai has a major presence there with its new Discovery and Innovation Center, which is serving as a cornerstone of life science advancements nationwide.

“The Lebowhl Center is at the forefront of a new area of biology and medicine, the field of neuroimmunology. This field is a completely uncharted frontier. When we think about the five senses, they are sight, hearing, taste, smell, and touch, but the fundamental premise of the Center is that there are probably thousands of senses that we have only started to realize exist,” says Brian S. Kim, MD, MTR, FAAD, Vice Chair of Research at the Icahn School of Medicine at Mount Sinai, and Director of the Center. How we sense inflammation and itch, the most common symptoms in dermatology, along with related areas, is being explored at the Lebowhl Center.

Dr. Kim is joined by recent recruits Hongzhen Hu, PhD, MS, Scientific Director of the Lebowhl Center, Professor of Dermatology, and Neuroscience, and Michel Enamorado, PhD, Assistant Professor, Dermatology, who are building a team to explore how the immune system interacts with the nervous system in the biological domain. Drs. Hu and Enamorado bring expertise and major grant funding with the objective of increasing our research footprint.



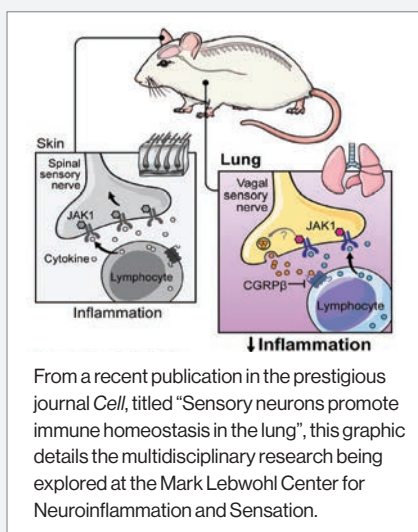
Dr. Brian S. Kim (center) and the team at the Mark Lebowhl Center for Neuroinflammation and Sensation.

The investment in the Lebowhl Center by our generous donors and Mount Sinai was quite visionary. That support foresaw the explosive growth in the new field of neuroimmunology, which has recently received validation from the Paul G. Allen Family Foundation granting Mount Sinai \$10 million over four years for the Allen Discovery Center (ADC) for Neuroimmune Interactions at Icahn Mount Sinai—New York’s first and the world’s fifth ADC. This new multidisciplinary research center, spearheaded by Dr. Kim, will bring together leading experts from Icahn Mount Sinai, Weill Cornell Medicine, NYU Langone Health, and Yale School of Medicine to study the intersection of immunology and neuroscience.

One of the ADC’s major initiatives is open science. The team will make things technologically and rapidly accessible, whether it’s data, technology, other research, animal resources, or intellectual resources. They will also interface with many scientists in the New York region and

internationally to mobilize these efforts. “By making moonshot discoveries in science, we will be able to seed science and then medical innovation across the world,” says Dr. Kim.

Midtown West is an area where biotech meets academia meets investors. Mount Sinai has invested heavily in the new Discovery and Innovation Center, located in the same building as the Lebowhl Center and the ADC. We are proud to be part of this ecosystem, which is becoming a major biotech hub and an accelerator of scientific research.



## New Appointees



**Jonas Adalsteinsson, MD, PhD**

Assistant Professor, Dermatology  
Director, Autoimmune Blistering Diseases  
Director, Dermato-epidemiology



**Karen Anthony, PhD**

Assistant Clinical Professor, Dermatology



**Patricia Cabral, MD**

Instructor, Dermatology



**Ahuva Cices, MD**

Assistant Professor, Dermatology, Director, Clinic for Cutaneous Manifestations of Inflammatory Bowel Disease, Director, Cosmetic Dermatology for Patients with Autoimmune Disease



**Ester Del Duca, MD**

Instructor, Dermatology



**Michel Enamorado, PhD**

Assistant Professor, Dermatology  
Assistant Professor/  
Tenure Track Investigator, Mark Lebwohl Center for Neuroinflammation and Sensation



**Courtney Ensslin, MD**

Assistant Professor, Dermatology



**Justine Fenner, MD**

Assistant Professor, Dermatology  
Director, Pediatric and Adolescent Dermatology



**Hongzhen Hu, PhD**

Professor, Dermatology  
Scientific Director, Mark Lebwohl Center for Neuroinflammation and Sensation



**Jordan Talia, MD**

Assistant Professor, Dermatology  
Director, Skin of Color Center  
Director, Complex Medical Dermatology Clinic



**Olivia Wind, MD**

Instructor, Dermatology

## Meet Our Trainees



Dr. Emma Guttman (center right), Dr. Alexandra Golant, (center left), and Dr. Jonathan Ungar, (center), are pictured with the Department's residents and fellows. The Dermatology Residency offers residents the opportunity to train at a variety of subspecialty clinics, including: Allergic Contact Derm (patch testing), Rheum Derm, Complex Medical Derm, Skin Cancer Center, Cutaneous Lymphoma, Skin of Color, and a new, Immunobullous Diseases Clinic.

# Dermatology Advisory Board Advocates for Advancement of Research and Innovation

The Dermatology Advisory Board gathers the perspectives of dermatology patients, physicians, and advocates with an interest in pushing the boundaries of research and clinical care and championing innovative treatments in dermatology. As visionary partners, the Board generously gives their energy, wisdom, and philanthropic support to the endeavors of the Kimberly and Eric J. Waldman Department of Dermatology under the leadership of Emma Guttman-Yassky, MD, PhD, Waldman Professor and System Chair of Dermatology at the Icahn School of Medicine at Mount Sinai, to further our mission of delivering superior, comprehensive skin health care to our patients with dermatologic diseases.

We are exceedingly proud of the Department's unique ability to conduct therapeutic and translational research, quickly bringing discoveries made in the laboratory to clinical trials and then directly to patients, fostering rapid therapeutic options for patients. This true bedside-to-bench-and-back approach will ultimately benefit millions of patients all over the world, and simply would not be possible without the Dermatology Advisory Board.

In partnership with the Board, we look forward to expanding on our more than 40-year record of clinical and research achievements to bring a healthier future to our patients and their families.



## Members of the Dermatology Advisory Board

**Andrew Bronin, MD**  
**Robert Buka, MD**  
**Elissa Cullman**  
**Francesco De Rubertis**  
**Loren Eng**  
**David Granson**  
**Leon Kircik, MD**  
**Mehdi and Olga Khosrow-Pour**  
**Herbert Kozlov**  
**Michael Lee**

**Jody A. Levine, MD, and**  
**Elie Levine, MD**  
**Michael Mandelbaum**  
**Will Manuel**  
**Catherine Orentreich, MD**  
**David Orentreich, MD**  
**Jonathan Pure**  
**Nina Reeves**  
**Ada Samuelsson**  
**Allen Sapadin, MD**  
**Steven Schnur and**  
**Eliane Braz-Schnur**

**Eric Schweiger, MD**  
**Kimberly and Eric J. Waldman**  
**Huachen Wei, MD, PhD**  
**John Weinberg**  
**Johannes Worsoe**  
**Carol F. Zale, MD, and**  
**David Zale**

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Honorary Board Member/  
Scientific Advisor:  
**George Yancopoulos, MD, PhD**

# Department of Dermatology

## Quick Facts 2023

### Clinical Statistics



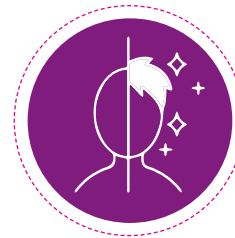
**100,000+**  
patient visits



**43,000+**  
Outpatient Cases  
Processed by Dermpath  
Services



**20,000+**  
Skin Cancers  
treated



**8,200+**  
Alopecia Center of  
Excellence  
patient visits

### Research and Faculty Statistics



**\$24M+**  
In Research Funding



**300+**  
Publications



**47**  
Clinical and  
Research Faculty



**34**  
Residents and  
Fellows



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

## Our Leadership

**Emma Guttman, MD, PhD**

Waldman Professor  
and System Chair

**Tomlee Lahayil Abraham**

Vice Chair of Administration  
and Health System  
Administrator

**Marsha L. Gordon, MD**

Vice Chair of Professionalism,  
Wellness and Quality

**Brian S. Kim, MD**

Vice Chair of Research

**Angela J. Lamb, MD**

Vice Chair of Clinical  
Operations

**Jesse Miller Lewin, MD**

Vice Chair of Surgical  
Operations

**Alexandra K. Golant, MD**

Residency Program Director

**Jonathan P. Ungar, MD**

Residency Program  
Co-Director

**Alice B. Gottlieb, MD, PhD**

Site Medical Director  
Mount Sinai Beth Israel

**Mark G. Lebwohl, MD**

Chairman Emeritus and  
Dean for Clinical  
Therapeutics



**Mount  
Sinai**

## The Kimberly and Eric J. Waldman

### Department of Dermatology

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Visit: [www.mountsinai.org/care/dermatology](http://www.mountsinai.org/care/dermatology)



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[www.mountsinai.org/care/dermatology](http://www.mountsinai.org/care/dermatology).

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## 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