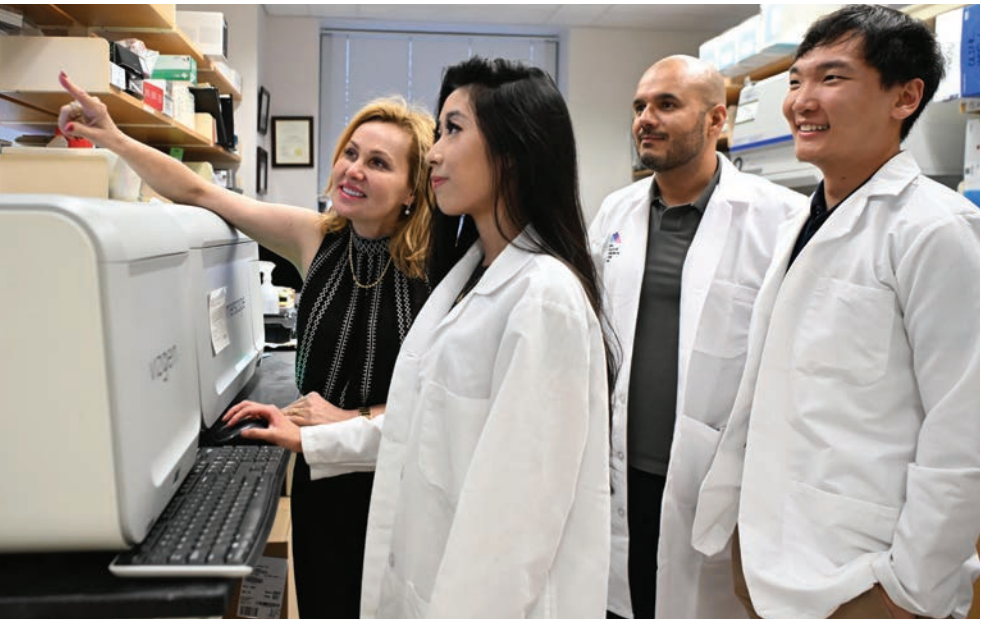
The Kimberly and Eric J. Waldman

Department of Dermatology

2025

Mount Sinai



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

I am pleased to share with you this new report on the many achievements in 2024 at the Kimberly and Eric J. Waldman Department of Dermatology.

In 2024, we exceeded expectations in every aspect: We delivered comprehensive and superior dermatological care with more than 118,000 patient visits and conducted groundbreaking, translational research with $33.9 million in National Institutes of Health (NIH) research funding (cumulative through 2028), which helped to fund the expansion of our clinical trials. With a record number of publications and patent applications, 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 skin cancers and other skin diseases.

We recruited top faculty talent in 2024 who will expand our efforts in innovative research, continuing our upward trajectory as a U.S. and world leader. Our recruits include:

Danielle Dubin, MD, is a recent graduate of our Mount Sinai dermatology program, where she served as Chief Resident. Dr. Dubin joined as Assistant Professor, Dermatology, and Director for Medical and Cosmetic Pigmentary Disorders. In her role as Associate Residency Program Director, Dr. Dubin will assist in fostering our residency program as we continue to attract top candidates.

Helen He, MD, a rising star in research and cosmetic dermatology, was recruited in August 2024 from our residency program. She joins as Assistant Professor, Dermatology, Director of Lasers and Cosmetic Surgery, and Co-Director of the Mount Sinai-Clinique Healthy Skin Dermatology Center. Dr. He's clinical focus is on cosmetic surgery and lasers and energy-based devices in diverse skin types, particularly Asian skin, and women's health. Her research interest is in molecular mechanisms of skin aging/anti-aging treatments and inflammatory skin diseases.

Eric Loesch, MD, joined as Assistant Professor, Dermatology, and Director of the Clinic for Skin Cancer Surveillance and Surgery in August 2024. Dr. Loesch was trained in plastics and orthopedic surgery before finding his home in dermatology. His clinical focus is dermatology/oncology and hair disorders, and he utilizes his surgical background performing excisions of benign and malignant lesions (dysplastic nevi, skin cancers, cysts, lipomas, etc.). We are proud to offer his skill set to our patients.

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

Shane Meehan, MD, was recruited from NYU Langone Health in August 2024 as Professor, Dermatopathology-Dermatology, with an expertise in digital dermatopathology and applications of artificial intelligence. With the help of Dr. Meehan, the final stages of the transition of dermatopathology into our Department will be complete, and we will grow our service offerings.

The new **Dermatopathology Services Lab** location on Manhattan's West Side will open in 2025 and we expect to more than double patient volume in the new space. Its expansion is fueled by 40 percent growth in our total patient volume since 2020. Additionally, we will expand the use of digital dermatopathology and AI research, with Dr. Meehan's guidance.

Shruti Naik, PhD, a recent research faculty recruit, joined in July 2024 and is bringing grants and expanding our research footprint. Dr. Naik was recruited from NYU Langone Health, where she investigated how immune cells affect skin repair and disease. Dr Naik has joined as an Associate Professor, with a joint appointment in the Department of Immunology and Immunotherapy under the leadership of Miriam Merad, MD, PhD. Dr. Naik will also serve as Director of the new Tissue Repair Program.

The **Kimberly and Eric J. Waldman Melanoma and Skin Cancer Center**, under the leadership of its Director, Jesse M. Lewin, MD, FACMS, continues to offer a rare combination of technologies that allow the most advanced, state-of-the-art services in monitoring, diagnosing, and preventing skin cancer. More than 30,000 cases of skin cancers were treated, including about 2,000 Mohs surgeries, which offers patients the highest cure rate on cosmetically sensitive areas. Unique non-invasive technologies are utilized, such as 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. The Center is employing artificial intelligence to help explore multiple advanced technologies and novel techniques, allowing for early detection and cure of skin cancers.

Our **Alopecia Center of Excellence** is thriving, serving more than 7,800 patients in 2024. 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 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, aims to expand research and develop novel treatments.

Our team received a $6.6 million, five-year NIH grant to investigate dupilumab treatment in pediatric alopecia. This grant will fund a collaborative effort to investigate

the safety, tolerability, efficacy, and durability of response of dupilumab in pediatric patients with extensive alopecia areata (AA). This exciting NIH-funded clinical trial will expand our mechanistic understanding of AA and shed light on the regulatory immune circuits in the pathogenesis of AA, particularly in children and adolescents.

Building on my collaboration with researchers outside of Mount Sinai, I served as lead Principal Investigator, with Dusan Bogunovic, PhD, at Columbia University, and received more than $4 million for a five-year NIH R61/R33 grant to evaluate the long-term safety, efficacy, and mechanisms of medications known as JAK inhibitors in patients with Down syndrome, an underserved population.

We received a philanthropic commitment of $5 million over seven years from a partnership with Clinique to establish the **Mount Sinai-Clinique Healthy Skin Dermatology Center**, which Dr. He and I will co-direct. The Center aims to deliver breakthrough advancements in dermatology by developing forward-thinking research exploring the biological underpinnings of skin aging, skin allergies, and inflammatory or eczematous skin conditions, including eczema (or atopic dermatitis) and contact dermatitis.

Under the direction of **Brian S. Kim, MD**, the **Mark Lebwohl Center of Neuroinflammation and Sensation** is gaining momentum with increased research funding from both federal and industry sources. It was established by $4.7 million of philanthropic dollars and continues to conduct groundbreaking research to understand the connections between skin immunity, inflammation, and neurosensation. The investment in the Lebwohl 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. The Foundation granted Mount Sinai $10 million over four years for the Allen Discovery Center (ADC) for Neuroimmune Interactions at the Icahn School of Medicine at Mount Sinai. Its location, at the Discovery and Innovation Center in Midtown West, places it at the epicenter of Mount Sinai's new biotechnology hub.

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 service completed same day. As Vice Chair of Surgical Operations, Jesse M. Lewin, MD, treats more than 2,000 skin cancers per year, with more than 1,500 Mohs procedures per year, which reflects a huge increase from only 450 cases a few years ago.

The NIH awarded our Department a **T32 grant** for research training in systems skin biology. There are a limited number of T32 grants awarded for dermatology in the United States, and we are honored to have received it. This highly coveted and distinguished award has expanded our research training program. It created an intersectional science training program for both pre-docs and postdocs in systems skin biology and initiated 2+2 and 2+1 residency track programs.

Our Department was **ranked No. 7 in research output and No. 10 in overall reputation in the United States** on Doximity Residency Navigator, based on the largest survey and CV analysis of current residents and recent alumni from the most comprehensive residency program directory available. We have the third largest program in the United States (27 residents), with a higher number of subspecialties (Autoimmune, Skin of Color, Blistering Diseases, Pediatrics, Mohs Surgery, Dermatopathology, Skin Regeneration and Rejuvenation program, Cutaneous Lymphoma, Rheumatology Dermatology, and Complex Medical Dermatology) than many top programs.

We are continuing our partnership with the **Biologics Treatment Center** program at The Mount Sinai Hospital. The program provides a dedicated team advocating for better patient care, facilitating insurance approvals, and providing educational support to our patients in need of biologics.

Continuing to foster philanthropic growth, our Dermatology Advisory Board has more than 30 members. (A list can be found on page 14.) Their guidance helps us achieve our ambitious goals. Their vision and generous advocacy are inspirational. The board's unwavering support and expertise continue to help us provide better outcomes for our patients by expanding the boundaries of our research and clinical care.

Thank you for reading our annual report, and we look forward to a productive and exciting 2025.

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Celebrating 10 Years of Research and Innovation in Diagnosis and Treatment of Melanoma and Skin Cancer

The 10th anniversary of Kimberly and Eric J. Waldman endowing the Waldman Chair of Dermatology in the Kimberly and Eric J. Waldman Department of Dermatology at the Icahn School of Medicine at Mount Sinai is being celebrated in 2025. Marking this milestone, new research studies are being conducted by the team at the Kimberly and Eric J. Waldman Melanoma and Skin Cancer Center at Mount Sinai, led by its Director, Jesse M. Lewin, MD, FACMS.

In 2024, specialists at the Center treated more than 30,000 cases of skin cancer, up significantly from 2023. Concerned by that trend, Jonathan Ungar, MD, Medical Director of the Center, is taking unique steps to help protect people from skin cancer.

Dr. Ungar is leading several studies to identify ways to encourage people to adopt more protective behaviors. In one study, he showed participants images of their skin taken using a UV bandpass filter-equipped camera, which revealed damage that is otherwise not readily apparent. In another, Dr. Ungar collaborated with Dr. Lewin, who is also Chief of Mohs Surgery, to share images of surgical wounds in patients who had undergone Mohs surgery to patients being screened for skin cancer.

"It may seem gruesome to show people images of patients who have had part of their face removed as part of their treatment," says Dr. Ungar, who is also Assistant Professor of Dermatology at the Icahn School of Medicine at Mount Sinai. "But studies like this are important in that they help us determine whether there are better ways to motivate patients to take measures that they know could protect themselves, such as applying sunscreen, but are not always top of mind."

Such measures may seem unconventional in treating skin cancer, which affects several million people nationwide. But they are in line with the Center's legacy of innovation in skin cancer research and treatment. This commitment to pushing the boundaries has manifested in many ways over the years, from early adoption of technology that can produce 360-degree full-body patient imaging in minutes to offering patients non-surgical treatment options such as chemotherapy creams. It has also led to groundbreaking research in immunotherapies and molecular drivers that are benefitting patients treated at the Center and beyond.

"We have a tripartite mission of research, clinical care, and teaching," Dr. Ungar says. "Those elements are not unique, but we are doing all of those in unison in ways that I believe are uncommon. When you add the robust volume of patients who are being screened and treated by our team of physician-scientists, that is producing insights that enable us to meet our goal of better care and better outcomes."

Dr. Brunner (left) and his lab team focus on research in developing genetic profiles of cutaneous lymphomas, a diverse and complex group of rare cancers.

That opportunity to gain more knowledge on everything from disease pathology to preventative behaviors, and use it in ways that are transformative, is what continues to motivate us in the work we do.

— Jesse M. Lewin, MD, FACMS

Dr. Lewin is one of several physician-educators who support the Center's efforts to detect and cure skin cancer. He also trains the next generation of Mohs micrographic surgeons as the Program Director of the highly competitive Micrographic Surgery and Dermatologic Oncology Fellowship. Dr. Lewin received approximately 100 applicants from dermatology residency programs throughout the United States for one fellowship spot and consistently matches his top choice. On the research front, Dr. Lewin is conducting a clinical study to assess the potential of timolol, a topical beta-blocker commonly used to treat eye pressure, as a facilitator of wound healing among patients who present with skin cancer involving the legs.

Dr. Lewin (left) specializes in melanoma and nonmelanoma skin cancers, facial reconstructive surgery, and patient satisfaction.

Dr. Jonathan Ungar uses total body photography with the Vectra® WB180 system to closely monitor and detect melanoma and skin cancer.

"Patients with skin cancers on the legs represent a challenge, as healing in this area can be very slow," says Dr. Lewin, who is also Associate Professor of Dermatology, and System Chief of the Division of Dermatologic and Cosmetic Surgery.

"There is some evidence to suggest that timolol may accelerate healing," he says. "Our goal is to gather good data on the degree to which this helps, so we can adapt it for our patients in need."

Dr. Lewin is also examining the incidence of nonmelanoma skin cancers, in particular, squamous cell carcinoma and basal cell carcinoma. In one study, he queried International Classification of Disease diagnoses codes for nonmelanoma skin cancers in the Epic database to assess prevalence. These cancers are not tracked by the Surveillance, Epidemiology, and End Results Program (SEER) database, which means incidence rates are not thoroughly monitored. In another study, Dr. Lewin is looking at the incidence of basal cell carcinoma in younger patients.

"Anecdotally, I have noticed an increase in the number of new basal cell carcinomas among this younger demographic," Dr. Lewin says. "We want to better understand prevalence and quantify risk factors, such as geography, outdoor exposure, and sunscreen habits to see what might be driving this trend." Dr. Lewin runs a high-volume and high-quality surgical practice, treating more than 2,000 skin cancers per year (with more than 1,500 Mohs procedures per year) and is sought after by patients throughout the United States, as well as internationally.

Patrick Brunner, MD, has a different focus in his research related to skin cancer. He is developing genetic profiles of cutaneous lymphomas, a diverse and complex group of rare cancers. The goal is to identify molecular biomarkers of disease that are characteristic for certain subsets of patients, which will support improved diagnosis and prognosis. His work is also supporting the identification of new treatment targets for immunotherapies. In some subtypes, he has identified specific expression of treatment targets such as CCR4 and KIR3DL2, which might pave the way for future personalized treatment approaches.

"The next step will be to see whether targeted treatments work among the subsets of patients where we see these markers expressed and not among other subsets," says Dr. Brunner, Associate Professor of Dermatology and Director of the Cutaneous Lymphoma Clinic. "That will give us more confidence that the treatments we administer among patient subsets will be effective, and the ability to reduce the number of patients who receive ineffective treatments."

That confidence in recommending treatment is also driving Dr. Ungar's increased use of non-invasive diagnostic technologies such as reflectance confocal microscopy and tape stripping to better assess the efficacy of non-surgical approaches, such as photodynamic therapy.

"The ability to scan the treatment area and see if there are still islands of tumor cells present enhances our ability to make decisions about what the next steps in treatment will be," he says. "It gives us more comfort in trying different approaches for these patients, but equally important, it allows us to give patients more confidence about the treatment decisions they make."

Having made notable advances in the diagnosis and treatment of melanoma and skin cancer over the past 10 years, Dr. Lewin and the team at the Center are looking for more opportunities to build on their success. There is considerable interest in exploring the potential of artificial intelligence and machine learning to gain more insights. Dr. Lewin believes AI holds the promise to enhance identification of individuals at high risk for developing skin cancer, or those who have a higher risk for more aggressive forms of the disease.

"It is not just our patients who will benefit from these new technologies as we adopt them, but also patients everywhere," he says. "That opportunity to gain more knowledge on everything from disease pathology to preventative behaviors, and use it in ways that are transformative, is what continues to motivate us in the work we do."

Developing a Road Map for Early Skin Cancer Detection

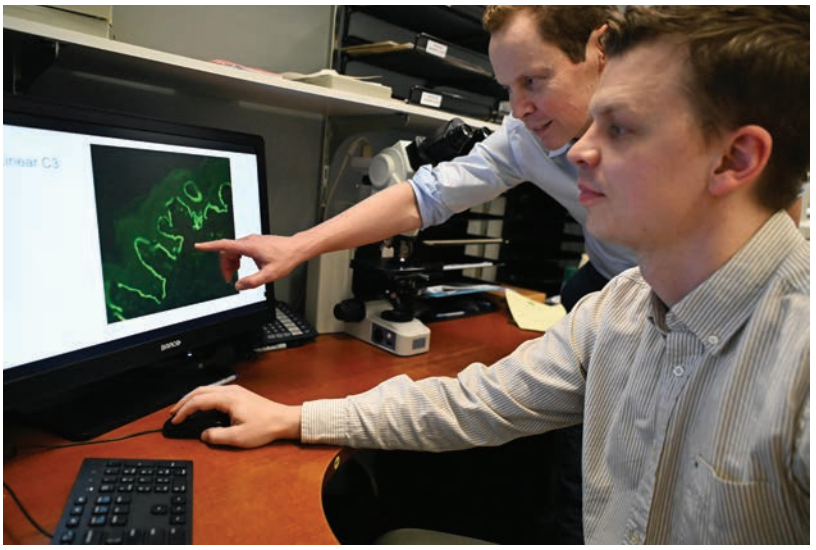
Mount Sinai dermatologists are accelerating their research efforts in the diagnosis of skin cancer through their leading-edge work with technologies like reflectance confocal microscopy, Vectra® total body photography, and, most recently, artificial intelligence (AI).

"Our ability to diagnose skin cancer accurately has the potential to become exponentially better," says Jonas Adalsteinsson, MD, PhD, Assistant Professor of Dermatology at the Icahn School of Medicine at Mount Sinai, who is actively involved in that research. "We're making steady progress, and I think the future is very bright for our field."

More than ever, the focus is on strengthening the clinical toolbox for early detection of melanoma and nonmelanoma lesions by developing non-invasive approaches that could significantly improve on the standard biopsy. "The field is clearly lacking in non-invasive techniques and procedures for early detection," says Andrew Ji, MD, Assistant Professor of Dermatology at the Icahn School of Medicine at Mount Sinai, whose lab explores the molecular mechanisms of how normal skin cells turn into malignant ones.

"We continue to rely on the skin biopsy, which, though low-risk and very safe, can be difficult for making an accurate diagnosis. Moreover, it leaves a scar on sun-exposed areas like the head and neck, which are particularly sensitive areas for patients concerned about the cosmetic outcomes."

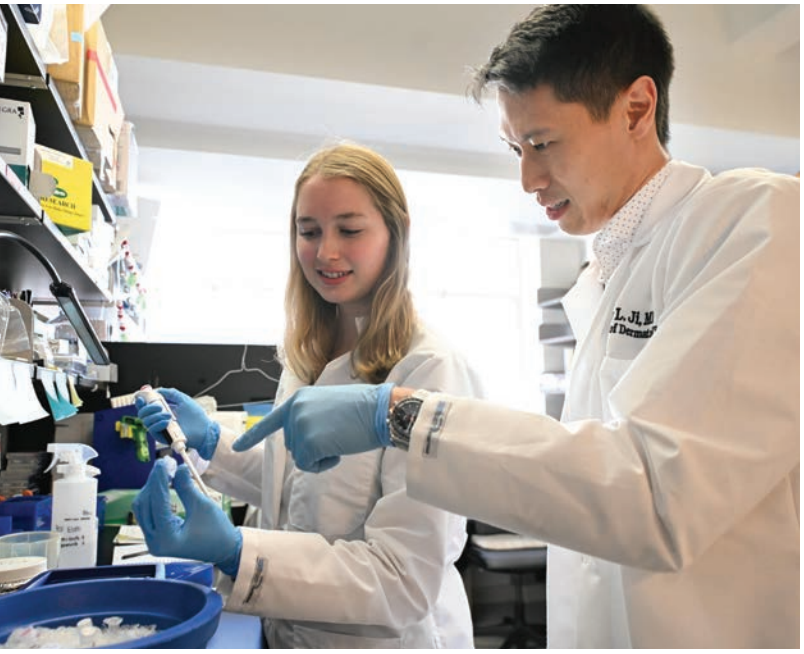
Specialists at the Kimberly and Eric J. Waldman Melanoma and Skin Cancer Center at Mount Sinai are able to tap into a wide range of technologies that allow for cellular-level images of the layers of the skin that rival the biopsy, while sparing patients a surgical incision. Among those advanced tools is reflectance confocal microscopy (RCM), an optical imaging technique that uses low-powered laser beams to penetrate the dermal layers and create spatially exact, three-dimensional structures. "RCM is extremely effective and the closest we can get to assessing things like pleomorphism and other features of melanoma without removing the lesion," says Dr. Adalsteinsson. "I'm extremely excited about its potential since we can use it at bedside to provide a histopathologic diagnosis within a minute." RCM is currently available to a limited number of patients nationally due to insurance issues and the high cost of this advanced technology.



Dr. Meehan (left) and Dr. Adalsteinsson (right) are utilizing artificial intelligence to develop a digital dermatopathology database for future research.

Dr. Gulati (right) emphasizes the importance of early detection of melanoma and skin cancer through patient education, awareness, and screening.

In their clinic, Mount Sinai dermatologists routinely use reflectance confocal microscopy in combination with standard dermoscopy to produce high-quality images of pigmented skin lesions and moles on patients that could be (or turn) cancerous. Combining these non-invasive diagnostic tools inspires the research of Dr. Adalsteinsson, whose lab is investigating their use in creating ever-more accurate imaging models for detecting melanoma as well as squamous cell and basal cell carcinomas.



Dr. Ji (right) focuses his research on squamous cell carcinoma and the molecular mechanisms of how normal skin cells turn into malignant ones.

At the clinical level, Mount Sinai is further populating the evolving road map for early skin cancer analysis with 3D total body photography, optical coherence tomography (OCT), and tape stripping.

The Vectra WB180 machine is particularly useful for detecting and then monitoring suspicious new lesions. Mount Sinai is one of a few centers in the United States to offer this tool, which simultaneously takes 92 photographs and merges them into a 3D avatar-like model of the patient to provide a baseline against which changes in growth and pigmentation of lesions can be accurately assessed. Vectra can generate a full-body scan in less than a minute.

Similar to ultrasound, OCT is another non-invasive technique that uses low-power infrared laser light to provide high-definition images of growths or lesions beneath the skin's surface.

Tape stripping offers an intriguing and highly promising mode of skin cancer surveillance that Mount Sinai has helped pioneer through the work of Emma Guttman-Yassky, MD, PhD, Waldman Professor of Dermatology and Immunology and System Chair of the Kimberly and Eric J. Waldman Department of Dermatology at the Icahn School of Medicine at Mount Sinai. Dr. Guttman was the first scientist to discover that applying strips of adhesive tape to skin lesions and non-lesional skin was an effective non-invasive way to obtain biomarkers for tracking the severity of early-onset pediatric eczema or atopic dermatitis in infants and young children. Though not yet standard clinical practice for skin cancer, tape stripping continues to be actively investigated at Mount Sinai as a simple yet reliable way to remove skin cells from a lesion and have them tested through gene sequencing or other molecular techniques to determine if they bear a cancerous signature. "We believe that through tape strips we can identify early unique gene signatures of melanoma and other skin cancers for early treatment and prevention," says Dr. Guttman.

Perhaps nowhere is the work around non-invasive early detection of skin cancer more exciting than in artificial intelligence. Mount Sinai has taken a leadership position in the field, with a recent study comparing the performance of OpenAI's ChatGPT-4 with board certified dermatologists. In a recently published study in *JAAD International*, three versions of GPT-4 with vision capability were configured to analyze dermoscopic images, clinical images, and paired dermoscopic and clinical images. Dermatologists evaluated three sets of PowerPoint slides of the same images of biopsy-confirmed benign and malignant skin lesions from 118 patients.

The results showed GPT-4 had a sensitivity of 51 percent for dermoscopic-only and clinical-only models, and specificities of 68 percent and 76 percent, respectively. When paired images were considered, sensitivity for AI improved to 77 percent—inferior to dermatologists at 87 percent—and specificity to 79 percent, superior to dermatologists at 63 percent.

"As we demonstrated, large-language models have great potential to make these diagnoses of benign versus malignant lesions at a level that is comparable to board certified dermatologists with special training," says Nicholas Gulati, MD, PhD, Assistant Professor of Dermatology and senior author of the study. "Our findings show, however, that GPT-4 falls short of replicating the clinical reasoning skills that dermatologists cultivate during training. The findings underscore the necessity of optimizing clinical information fed into AI diagnostic tools with the emphasis on augmenting—not supplanting—the nuanced decision-making processes of dermatologists."

Adds Dr. Ji, a researcher who runs a weekly clinic where he sees general dermatology patients, about the prospect of having AI at his fingertips: "Nothing can replace the doctor's professional judgment. But AI will give us more data to crunch through modalities, like Vectra, confocal microscopy, OCT, and molecular tools through minimally invasive tape strips, to come up with the soundest possible recommendation for the patient. It has outstanding potential, but as an aide."

Digital dermatopathology is another area utilizing AI. "With advances in machine learning, we plan to cultivate an expertise in digital dermatopathology with the application of AI to create standards for whole slide image archiving and to develop a digital dermatopathology database for the purpose of future research," says Shane Meehan, MD, Professor, Dermatopathology. Dr. Meehan, along with the entire Dermatopathology Lab, will leverage AI and machine learning technologies to develop algorithms for early diagnosis and treatment of skin cancers.

Indeed, not lost on Mount Sinai dermatologists amid the bold promise of AI is the enduring low-tech importance of patient education, awareness, and screening. "People need to know there is an increasing number of methods to non-invasively examine and monitor them for skin cancers, which even a lot of doctors aren't aware of," says Dr. Gulati. "This should give reassurance to patients, especially those who are needle- or scar-phobic, to see a dermatologist, while helping us to catch problems before they need advanced treatment."

Spearheading Breakthroughs at the Alopecia Center of Excellence

For too long, hair loss—or alopecia as it's known clinically—was considered to be a cosmetic condition, unfortunate but perhaps not urgent. And the treatments, too, have been few and far between, either less than fully effective or not safe for the long term.

All of that is now changing, thanks to the innovative efforts of Emma Guttman-Yassky, MD, PhD, and Benjamin Ungar, MD, who head up the research team at the Alopecia Center of Excellence at Mount Sinai. Dr. Ungar, Director of the Center, is keenly interested in the psychosocial impact of alopecia—and, also, in raising awareness, including among insurers, of the toll the condition can take on patients and their families. "Until recently, the enormous psychological effects of the disease were underappreciated," says Dr. Ungar. "For men, in particular, it's easy to think that baldness is no big deal. But I've seen many patients, both women and men, who tell me they look in the mirror and don't recognize themselves, that they don't feel they have anything to live for."

Now, exciting new studies at the Alopecia Center are cause for hope for these patients, shedding light on the underlying processes that lead to alopecia and pointing to new and safer therapies. That's the case for alopecia areata, an autoimmune inflammatory skin disease affecting more than 6.7 million Americans, which can cause patchy to total hair loss, including of the eyebrows and eyelashes.

Adults with Alopecia Areata

New Treatments Have Brought Progress—With Limits

Until three years ago, the only available therapies for adults and children with alopecia areata were painful steroid injections (as many as 100 injections per treatment) or broad-based immunosuppressant medications, including systemic steroids, methotrexate, cyclosporin, and treatments used to tamp down immunity in organ transplant patients, which all have potentially negative side effects, according to Dr. Ungar. That changed when three oral immune-modulating medications known as Janus kinase (JAK) inhibitors were approved to treat alopecia areata.

But while that has been a tremendous step forward, not everyone is a candidate for these medications, which come with a "black box" warning and are not approved for use in children under age 12. "Clearly, there is still a huge treatment gap," says Dr. Ungar.

A Touch of Serendipity

Then, in 2015, Dr. Guttman noticed something interesting while studying patients with atopic dermatitis who were being treated with another immune-modulating therapy known as dupilumab. "You could say that I got interested in alopecia areata through the back door, while focusing on atopic dermatitis," says Dr. Guttman, Waldman Professor of Dermatology and Immunology and System Chair of the Kimberly and Eric J. Waldman Department of Dermatology at the Icahn School of Medicine at Mount Sinai. "What I noticed is that some of my patients with atopic dermatitis who also happened to have alopecia areata and were being treated with the specific anti-type 2 immune cells monoclonal antibody drug dupilumab, began to grow hair," she recalls.

This was a major development given that dupilumab had an extensive safety profile, so much so that it is used to effectively

Pediatric Patients with Alopecia Areata

treat infants and young children with atopic dermatitis—and adults, too—with very few side effects. But the Dr. Guttman discovery also flew in the face of conventional wisdom in terms of what was driving the immune processes of alopecia areata versus atopic dermatitis.

Specifically, prior to Dr. Guttman's discovery, atopic dermatitis and alopecia areata were thought to be activated by different poles of the immune system, the former by so-called type 2 immune cells and the latter by type 1 cells. Logically, that meant the same immune-targeting medication should not work to ease both conditions.

A Startling Connection Between Alopecia and Eczema and Other Allergic Conditions

Dr. Guttman and the team set out to get to the bottom of the conundrum. "We began looking at the literature on patients with alopecia areata and discovered that there had been quite a few observations that these patients also had a high degree of atopy—meaning a family or personal history of asthma, allergies, eczema, and high immunoglobulin E (IgE)—all of which are activated by type 2 immune cells," she explains. "Nobody had linked this together before." The implications were evident to Dr. Guttman: First, that alopecia areata was also characterized by type 2 immune activation, just like many allergic conditions, eczema included. And second, that dupilumab, the same immune-modulating medication currently being used to treat people of all ages with moderate to severe atopic dermatitis, might also be effective in regrowing hair in patients with alopecia areata.

Dr. Ungar explains: "Unlike JAK inhibitors, which act more broadly on the immune system and block several immune pathways, dupilumab is very targeted. Rather than blocking large swaths of the immune system, it targets only the IL-4 receptor (blocking IL-4 and IL-13), which is involved in allergic inflammation," he explains. "That's what makes it safer."

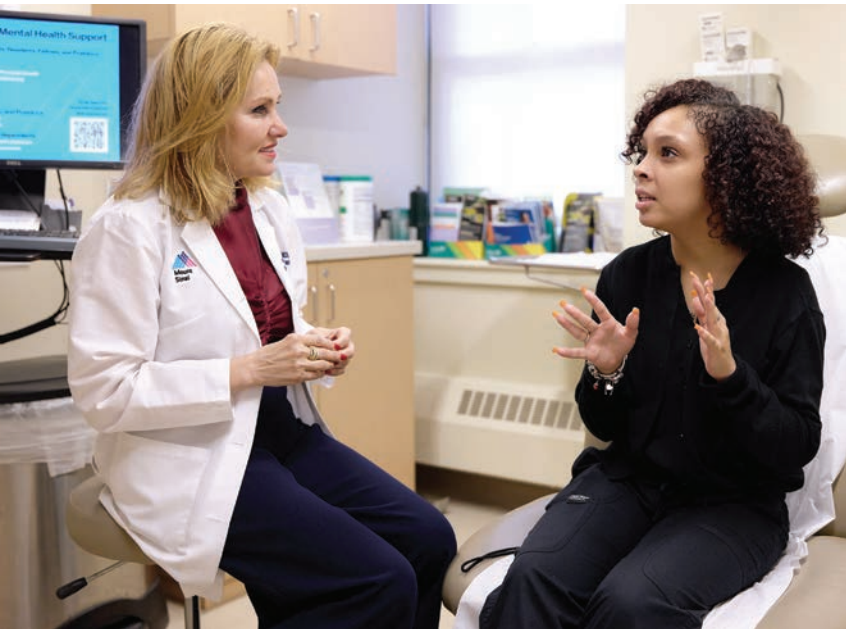
And indeed, two subsequent studies of patients with alopecia areata conducted at the Center found that people who also had allergic atopy (typically more than 50 percent of alopecia areata patients) began to regrow their hair. "We showed that when alopecia areata is a multifactorial disease co-existing with atopy, type 2 immunity does play a role, which opens the door to treatment with dupilumab," says Dr. Guttman.

Dr. Guttman believes that dupilumab may also be beneficial for certain non-dermatological conditions driven by inflammation, including COVID-19 responses. "During the pandemic, we discovered that some of our patients who were taking dupilumab who should have been susceptible to severe COVID-19 didn't get sick," she says. "I'm thinking of one patient with eczema and alopecia areata who was obese and had diabetes and who, unfortunately, had several siblings who died from the virus—but he ended up not getting sick. It turns out that dupilumab seems to reduce the manifestations of COVID-19, too."

Adds Dr. Ungar: "The idea that dupilumab might work for alopecia areata was on no one's radar, but through Dr. Guttman's insights, we have been able to move things forward. We are quite excited about the potential."

Progress for Scarring Alopecia

Making these kinds of connections is all in a day's work for Dr. Guttman, who is now turning her attention to three types of so-called scarring alopecia known as frontal fibrosing alopecia (FFA), which is increasing in prevalence, as well as lichen planopilaris and central centrifugal cicatricial alopecia (CCCA). "The first two of these most commonly occur in women, often starting when they are in their late forties, and can cause a receding hairline, along with redness and scarring, while the latter occurs primarily in Black women," says Dr. Guttman. And as was the case with alopecia areata, there wasn't much to do in terms of treatment other than immune suppressants or oral antibiotics. "But neither were very effective—and it was devastating for patients," she says. A recent study at the Alopecia Center published in the *American Academy of Dermatology Journal* promises an end to that devastation: "We found that JAKs are increased in the scalp of patients with



Dr. Guttman (top left) and Dr. Benjamin Ungar (bottom right) lead the research team at the Alopecia Center of Excellence.

scarring alopecia, and oral JAK inhibitors, if started early enough, can reverse the hair loss. We are now also proving that this may be possible in some cases with topical JAK inhibitors and are going to test topical JAK inhibitors on these conditions, as well. We are very busy with great prospects," Dr. Guttman says.

A Major NIH-Funded Study Will Explore Treatment for Alopecia Areata in Children

Next on the agenda for the Alopecia Center, thanks to a $6.6 million grant from the National Institutes of Health (NIH): a study of the effectiveness of dupilumab, in children with alopecia areata. Alopecia areata is more common in children than in adults—indeed, 40 percent of patients show symptoms before the age of 20. "Currently, there is only one treatment—a JAK inhibitor known as Litfulo™—approved for children ages 12 and up. That means children under age 12 have nothing because JAK inhibitors have potential safety concerns," Dr. Guttman explains. "As a parent, that's troubling."

That option—dupilumab—is a monoclonal antibody that has shown strong efficacy and safety, and is already approved for a number of diseases, including atopic dermatitis (eczema) and asthma. Dr. Guttman will lead a controlled trial of 76 children ages 6-17 years old with alopecia areata affecting at least 50 percent of the scalp. These patients will be randomized 2:1 (dupilumab to placebo) for 48 weeks, followed by 48 weeks open-label dupilumab for all participants so everyone can benefit, and lastly 16 weeks follow-up, for a total of 112 weeks.

"With alopecia areata, when you stop using medication, the hair starts falling out again, so we need safe treatments for the long term," says Dr. Guttman. "The only other available treatment for moderate to severe alopecia areata is JAK inhibitors—and those aren't approved for patients under age 12. That's why we are especially excited about testing out this safer option in children."

First-of-Its-Kind Clinical Trial Aims to Set New Standard-of-Care Protocols for Treating Alopecia Areata and Atopic Dermatitis in People With Down Syndrome

Another exciting study sponsored by the NIH will begin soon, in which individuals 12 years and older with Down syndrome and either alopecia areata or atopic dermatitis will be treated with abrocitinib. Although abrocitinib is approved for atopic dermatitis in the general population for adolescents and adults, it has not been studied specifically in the Down syndrome population. "We are extremely enthusiastic about our upcoming study to evaluate abrocitinib in people with Down syndrome and inflammatory skin diseases," says Dr. Guttman. "People with Down syndrome have unique systemic inflammation that we believe make them particularly good candidates for this treatment, and we feel fortunate that we will have this opportunity, because usually this population does not have studies that focus entirely on them."

New Research Center Aims to Discover Solutions for Healthy and Allergic Skin

Emma Guttman, MD, PhD, Waldman Professor of Dermatology and Immunology and System Chair of the Kimberly and Eric J. Waldman Department of Dermatology at the Icahn School of Medicine at Mount Sinai, received a philanthropic commitment of $5 million over seven years from Clinique to establish the Mount Sinai-Clinique Healthy Skin Dermatology Center, which she will co-direct with Helen He, MD. The team will conduct forward-thinking research, exploring the biological underpinnings of how skin ages, skin allergies, and inflammatory or eczematous skin conditions, including eczema (or atopic dermatitis) and contact dermatitis. Rooted in a shared mission to conduct dermatological research that improves patients' lives, the partnership will focus on applicable scientific discovery and leading-edge innovation to modernize allergy science and identify innovative solutions for these skin conditions.

"Years of chronic, inflamed skin play a role in premature aging. Extensive research has helped us understand the molecular map of skin conditions associated with allergy, such as eczema and contact dermatitis, and we're now at a pivotal point in addressing these conditions and more. With Clinique's support, we will continue to actively explore targeted approaches to reversing eczematous and allergic skin conditions with the goal of creating and sustaining healthy skin. In turn, we want to use this understanding to address and prevent the process of age-related inflammation or 'inflammaging' in the first place," says Dr. Guttman, who also directs the Center of Excellence in Eczema at Mount Sinai and the Laboratory of Inflammatory Skin Diseases at the Icahn School of Medicine at Mount Sinai.

Dr. Guttman's Laboratory of Inflammatory Skin Diseases has a major focus on atopic dermatitis, contact dermatitis, alopecia areata, and other inflammatory skin diseases. It has made paradigm-shifting discoveries on the immunologic basis of atopic dermatitis, opening the door to new therapeutics. This work on atopic dermatitis/eczema has contributed directly to many recently developed treatments.

Clinique has a long-standing history of partnering with dermatologists, including its Founding Dermatologist, Norman Orentreich, MD, and incorporating patients' insights in its innovation since 1968. His children, Catherine Orentreich, MD, and David Orentreich, MD, the brand's Guiding Dermatologists, continue their father's legacy. Dr. David Orentreich is Assistant Clinical Professor of Dermatology at the Icahn School of Medicine at Mount Sinai, and he and Dr. Catherine Orentreich are members of the Mount Sinai Dermatology Advisory Board.

The priority of the Center of Excellence in Eczema is to bridge basic science with practical application in the clinic to improve people's lives through healthy skin. By investigating healthy skin, along with the skin of those with inflammatory skin conditions who show signs of premature or accelerated aging, the team will aim to learn how to significantly slow the visible signs of aging in all people.

Using a translational approach, which has been so successful in inflammatory skin diseases, the Center's research will comprehensively characterize the molecular phenotype of skin and blood across a diverse spectrum of age, race, ethnicity, gender, and skin phototype, in both healthy individuals and patients with atopic dermatitis. By using minimally invasive tape strips to sample the skin that will then be analyzed by high-throughput transcriptomic and proteomic assays, the research will unveil important biomarkers of skin aging in both healthy and inflamed disease states. These findings could lead to individualized anti-aging treatments.

The Center's research will inform Clinique in future product innovation to offer more solutions for people with allergic or sensitive skin. "With Clinique's support, critical breakthroughs will be fast-tracked and will have a global impact on the study of aging, the treatment of skin diseases, and how patients look and feel in their skin," Dr. He says.

Dr. He (right) will explore the biological underpinnings of how skin ages, at the Mount Sinai-Clinique Healthy Skin Dermatology Center.

Advancing Research in the New Field of Neuroimmunology

The Mark Lebwohl Center for Neuroinflammation and Sensation continues to conduct multidisciplinary research, bringing together skin biology, immunology, and neuroscience (neuroimmunology). The Lebwohl Center team is exploring new ways to understand how the skin may be a gateway to inflammation throughout the body. In addition to treating skin diseases like eczema and hives, the team is exploring how the skin can be modulated to control diseases like asthma, food allergy, and inflammatory bowel disease, under the Director of the Center, Brian S. Kim, MD, who is Vice Chair of Research in the Kimberly and Eric J. Waldman Department of Dermatology at the Icahn School of Medicine at Mount Sinai.

Our generous donors were quite prescient in their support of this new field of neuroimmunology. It was validated by the Paul G. Allen Family Foundation through the creation of the Allen Discovery Center (ADC) for Neuroimmune Interactions with funding of $10 million over four years, with a total potential for $20 million over eight years. Spearheaded by Dr. Kim, this new multidisciplinary research center brings together leading experts within and outside of Mount Sinai, and is New York's first and the Allen Institute's fifth ADC.

New Labs Are Increasing Our Research Footprint

Hongzhen Hu, PhD, MS, Scientific Director of the Lebwohl Center, Professor of Dermatology, and Neuroscience, and Michel Enamorado, PhD, Assistant Professor of Dermatology, joined Mount Sinai in July 2023 and have set up their research labs.

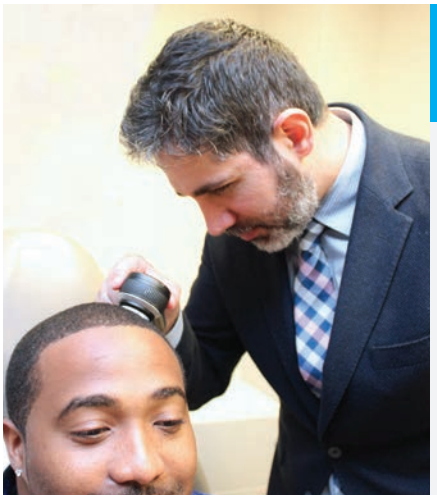
The Hu Lab's research focuses on understanding the initiation of sensory experiences, such as pain and itch, at the barrier surfaces of the skin and visceral organs. The team employs multidisciplinary approaches, such as pharmacological, optogenetic, and chemogenetic manipulations, to study genetically defined and molecularly distinct neuronal populations.

Dr. Kim, as Vice Chair of Research, leads multidisciplinary research teams exploring the new field of neuroimmunology.

The Enamorado Lab focuses on understanding the neuroimmune regulation of tissue injury and repair. Major areas of research include brain sensing of tissue injury and repair and the impact of tissue injury and repair on mental health.

Both labs are under the umbrella of the Lebwohl Center, and the team works with the Department's grants division to increase their funding from sources such as industry, foundations, and the National Institutes of Health.

Shruti Naik, PhD, joined in July 2024 as an Associate Professor and the Director of the new Tissue Repair Program. The Naik Lab studies how the body's outermost barrier tissues, such as the skin and gut, respond to, recover from, and remember environmental stressors, including microbes, injuries, inflammation, and carcinogens. Dr. Naik is on the team of the Allen Discovery Center for Neuroimmune Interactions, and her research draws from the fields of immunology, microbiology, stem cell and developmental biology, and cancer biology.



Skin of Color Center Focuses on the Unique Needs of Patients With Pigmented Skin

Jordan Talia, MD, is the Director of the Skin of Color Center, Director of Complex Medical Dermatology, and Assistant Professor at the Kimberly and Eric J. Waldman Department of Dermatology at the Icahn School of Medicine at Mount Sinai. He leads the team specializing in diagnosis and treatment of conditions more common in people of color (such as keloids, some forms of scarring alopecia, etc.) while providing personalized care.

The team at the Center has vast expertise with the particular needs of patients with pigmented skin. Specializing in diagnosing and treating skin conditions more common to, or of particular concern to, people of color, the team provides personalized and culturally sensitive care. Dr. Talia and team also work on research to better understand diseases affecting this population to help pioneer new treatments.

New Appointees

Danielle Dubin, MD
Assistant Professor, Dermatology
Director, Medical and Cosmetic Pigmentary Disorders
Associate Residency Program Director

Helen He, MD
Assistant Professor, Dermatology
Director, Lasers and Cosmetic Surgery
Co-Director, Mount Sinai-Clinique Healthy Skin Dermatology Center

Leon Kircik, MD
Clinical Professor, Dermatology

Eric Loesch, MD
Assistant Professor, Dermatology
Director, Clinic for Skin Cancer Surveillance and Surgery

Shane Meehan, MD
Professor, Dermatopathology-Dermatology

Shruti Naik, PhD
Associate Professor, Dermatology, Associate Professor, Immunology and Immunotherapy
Director, Tissue Repair Program

Faculty Awards 2024

Emma Guttman, MD, PhD

- The Paul Ehrlich Award, the highest award given by the European Academy of Allergy and Clinical Immunology, recognizing a scientist who revolutionized the understanding of allergic diseases and immunological mechanisms
- Jacobi Medallion Award, by the Mount Sinai Alumni Association and the Icahn School of Medicine at Mount Sinai
- Rodan Fields Lectureship: "Alopecia Areata Has Common Mechanisms With Atopic Dermatitis," Stanford University
- Inaugural Therapeutic Innovation Award, from the American Skin Association (ASA) at the ASA Gala
- 2024 Service Excellence Award from the Healthnetwork Foundation, recognizing the support and partnership she has provided to their team over the years
- "Highly Cited Researcher 2024" by Clarivate, Ranked No. 1 Highest H-Index in Dermatology and Immunology in the last five complete years and No. 2 in the last 14 years. Dr. Guttman received this prestigious award in recognition of exceptional research performance, demonstrating significant and broad influence in the field.

Mark Lebwohl, MD

- Presidential Citation–American Academy of Dermatology, as an educator of excellence in the treatment of complex medical dermatologic conditions
- Plenary lecture at an international meeting Gene-to-Clinic, December 2024
- Cullman Family Award for Excellence in Physician Communication 2024

Andrew Ji, MD

- 2024 American Society for Clinical Investigators Young Physician Scientist Award
- 2024 ASA Sanofi Investigative Scientist Award in Atopic Dermatitis

Patrick Brunner, MD

- ASA Incyte Research Scholar Award in Vitiligo/Pigment Cell Disorders

Marsha Gordon, MD

- Cullman Family Award for Excellence in Physician Communication 2024, for the ninth consecutive year

Brian Kim, MD

- 2024 Marion B. Sulzberger, MD Research Award and Lectureship
- Donald Y. M. Leung, MD, PhD-JACI Editors Lectureship and Faculty Development Award at the 2024 American Academy of Allergy, Asthma & Immunology (AAAAI) Annual Meeting

Alice B. Gottlieb, MD, PhD

- Invited Guest Lecturer, Society for Investigative Dermatology, Dallas, TX, May 2024
- Named an inaugural Highly Ranked Scholar by ScholarGPS

Saakshi Khattri, MD

- Offered to join and now serves on the National Psoriasis Foundation Medical Board
- Nominated and approved as an International Psoriasis Council councilor

Hongzhen Hu, PhD

- Three NIH grants (two R01s plus one R56) in 2024 with a total award of more than $2 million to Mount Sinai

Michel Enamorado, PhD

- 2024 Distinguished Scholar Award Recipient from the Icahn School of Medicine at Mount Sinai for his publication "Sensing Tissue Repair"

Shruti Naik, PhD

- Leo Foundation Award (North American Winner)
- Elected to Society for Investigative Dermatology, Board of Directors

Jordan Talia, MD

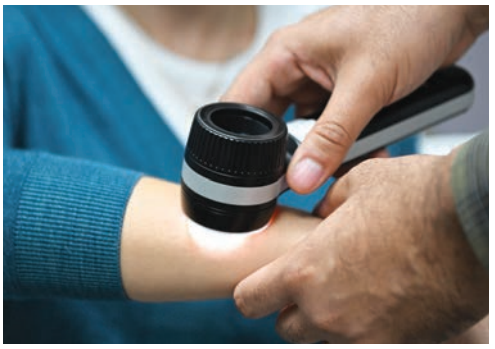
- Voted Top Teacher of the Year 2024 by Mount Sinai residents

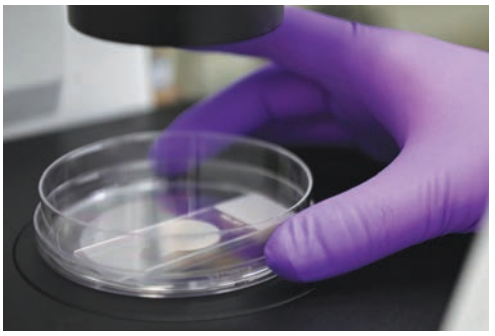
Meet Our Trainees

Dr. Emma Guttman (center), Dr. Alexandra Golant (center left), Dr. Jonathan Ungar (center right), and Dr. Danielle Dubin (far right) are pictured with the Department's residents and fellows. The Dermatology Residency offers the opportunity to train in a variety of subspecialties: Autoimmune, Skin of Color, Blistering Diseases, Pediatrics, Mohs Surgery, Dermatopathology, Skin Regeneration and Rejuvenation program, Cutaneous Lymphoma, Rheumatologic Dermatology, and Complex Medical Dermatology.

Dermatology Advisory Board Guides Innovation and Growth

As leaders and visionaries, the members of the Dermatology Advisory Board generously lend their expertise, energy, 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. The transformational impact of the Board's contributions, through championing innovative research and fostering medical breakthroughs, ultimately benefits not only our patients but millions of patients all over the world.





The Board recognizes the mission of the Department to deliver exceptional, comprehensive patient care and advance the science of dermatology through research and education. The Department has the unique ability to conduct therapeutic and translational research, quickly bringing discoveries made in the laboratory to clinical trials and then directly to patients. This mission would simply not be possible without the Dermatology Advisory Board.

At the Department of Dermatology, we are proud of our more than 40-year record of clinical and research achievements and look forward to continued partnership with the Board. With the Board's steadfast support and philanthropic commitment, we strive to push the boundaries of research and clinical care, and build a brighter, healthier future for our patients and their families.

Members of the Dermatology Advisory Board

Frances Bivens
Andrew Bronin, MD
Robert Buka, MD
Elissa Cullman
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Yuri Frayman
David Granson
Mehdi and Olga Khosrow-Pour
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Kimberly and Eric J. Waldman
Huachen Wei, MD, PhD
John Weinberg
Johannes Worsoe
Carol F. Zale, MD, and David Zale

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

2024 Award Highlights

- **Kristina Navrazhina, MD, PhD**, first-year dermatology resident, was awarded a $1 million grant from Sanofi for research providing a comprehensive molecular map of hidradenitis suppurativa that may define specific endotypes and identify novel therapeutic targets.
- Two of our residents won prizes at the Annual Stritzler Resident Competition at the Dermatologic Society of Greater New York in February 2024:
  Celina Dubin, MD, then PGY2, won first place by presenting "Immune Pathomechanisms of Frontal Fibrosing Alopecia."
  Daniela Mikhaylov, MD, then PGY2, won third place by presenting "Tape Strips Capture Gene Expression Changes in Moderate-to-Severe Atopic Dermatitis Patients Treated With Dupilumab."
- **Scott Stratman, MD**, current PGY3, received 2025 ARTE Scholarship Recipient for Orlando ODAC Dermatology Conference in January 2025 and Resident Representative for the LGBTQ+ Expert Resource Group for the American Academy of Dermatology (AAD) in March 2024.
- **Sabrina Ghalili, MD**, current PGY2, was awarded the 2024 Preliminary Resident of the Year, Brooklyn Methodist Hospital.
- **Tomlee Lahayil Abraham, MS, MPH**, Vice Chair of Administration and Health System Administrator, was awarded the 2024 Distinguished Alumni Award from the New Jersey Institute of Technology, Jordan Hu College of Science and Liberal Arts. Mr. Abraham was the first alumnus of NJIT to receive this prestigious award twice (2016 and 2024).

Department of Dermatology

Quick Facts 2024

Clinical Statistics

118,000+
Patient Visits

46,800+
Outpatient Cases Processed by Dermpath Services

30,000+
Skin Cancers Treated

525+
Participants in Active Clinical Trials

Research and Faculty Statistics

$31M+
In Research Funding

330+
Publications

48
Clinical and Research Faculty

33
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

Nadine M. Kaskas, MD
Site Medical Director,
Mount Sinai Downtown

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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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.

Mount Sinai Health System

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- 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