The Dermatology Foundation has a critical role in the advancement of the specialty. For over five decades it has identified and provided the research funding needed to launch and retain tomorrow’s expert teachers, innovative investigators, and master clinicians.

Thanks to the generosity of its members and industry supporters, the DF is able to provide essential funding each year to individuals with the potential to significantly enhance the scientific base of dermatology and further patient care.
The Dermatology Foundation is the only private funding source dedicated to developing and retaining tomorrow’s scientific and clinical experts in the specialty.

The DF is second only to the NIH in supporting dermatologic research. Earlier this year, the Foundation bestowed $2.6 million in research funding to 51 deserving individuals for projects spanning all areas of the specialty.

The Board of Trustees is pleased to present the 2016 research award recipients. The Trustees take pride in supporting these individuals and look forward to watching each advance and contribute to the field of dermatology.

Charles & Daneen Stiefel Scholar Award in Autoimmune &/or Connective Tissue Diseases Renewals

This award provides $100,000 in annual support for up to three years for salary and/or project expenses. It was designed to support investigators committed to elucidating the basis, pathophysiology, clinical manifestations, and/or treatment of autoimmune and/or connective tissue diseases affecting adults and/or children. The Stiefel Scholar Award is unique in that it supports an outstanding early- to mid-career investigator with an established trajectory of excellence in basic, translational, and/or clinical science.

To receive a second or third year of funding, a Stiefel Scholar Award recipient must demonstrate substantial progress in his/her funded project. The following individuals have met the high standards for renewed support of their valuable research.

John E. Harris, M.D., Ph.D. – Year 3
University of Massachusetts
Skin-Resident Memory T Cells in Vitiligo

Vitiligo is an autoimmune skin disease characterized by disfiguring white spots. I am interested in how these spots form, and why they are so reluctant to go away. Current treatments are not FDA-approved, are not very effective, and they must be continued for life. Studies of viral skin infections reveal that immune cells become activated in the skin to eliminate the virus, and then remain there for a very long time to help prevent reinfection. I hypothesize that the same type of cells become activated in the skin during vitiligo, and likewise remain in the skin long-term to maintain the white spots and resist treatment. Further, I hypothesize that removing these cells by using a topical drug that interferes with signals that they require for survival will result in a short-term treatment that has long-lasting effects.

Aimee S. Payne, M.D., Ph.D. – Year 2
University of Pennsylvania
Defining Peripheral B-Cell Tolerance Checkpoints in Pemphigus to Improve Therapy

Pemphigus is a life-threatening autoimmune blistering disease that has no FDA-approved therapies. Anti-CD20 B-cell depletion is one of the most effective treatments for pemphigus, although approximately 80% of patients relapse and require retreatment. This risks side effects, including fatal infection. Because newly developed therapies deplete different B cell subsets, it is essential to identify which subsets harbor the pathologic autoimmune B cells in pemphigus, as these are the subsets that therapy should target. The proposed studies will allow us to understand how best to use B-cell depletion therapies in pemphigus, with the goal of disease cure rather than just disease control.

Michael D. Rosenblum, M.D., Ph.D. – Year 2
University of California, San Francisco
The Role of Regulatory T Cells in Hair Follicle Homeostasis and Alopecia Areata

Therapies that enhance the body’s ability to control the immune system have the potential to resolve inflammation with minimal side effects. The overall goal of this grant application is to understand how the immune system controls inflammation around hair follicles and to determine whether this inflammation can be controlled using a novel therapeutic protein. Results from this research may have a profound impact on patients suffering from alopecia areata and other forms of inflammatory hair loss.
Career Development Awards

The most competitive of the Foundation’s early career awards, career development awards (CDAs) provide $55,000 in annual salary support for up to three years. The DF provides a variety of CDAs intended for individuals who exhibit exceptional potential to contribute to the advancement of dermatology. These awards provide recipients with the opportunity to focus on developing the data and experience necessary to successfully compete for federal funding.

Clinical Career Development Award in Health Care Policy/Public Health

Katrina E. Abuabara, M.D.
University of California, San Francisco
Eczema Epidemiology and Comorbidities

This study aims to determine the prevalence, severity, and duration of eczema in both children and adults in a large population-based cohort. We will also quantify the occurrence of the most common new diagnoses that develop in eczema patients and calculate any increased risk of comorbid disease. Finally, we will determine whether patients with severe eczema have an increased risk of autism.

Clinical Career Development Award in Dermatologic Surgery

Christian L. Baum, M.D.
Mayo Clinic, Rochester
Prognostic Risk Factors and Interventions for Patients with cSCC and CLL/NHL

Patients with chronic lymphocytic leukemia/non-Hodgkin lymphoma (CLL/NHL) have an increased risk of developing cutaneous squamous cell carcinoma (cSCC), and worse outcomes if they develop it. We aim to identify molecular and genetic tests that will help to predict a patient’s risk of cSCC, and the outcome when it coexists. We will also refine surgical techniques for treating cSCC to improve patient outcomes in this group.

Emily Stamell Ruiz, M.D.
Harvard University
Skin Cancer Equity and Expenditure Analysis

Identifying areas of disparity with respect to skin cancer incidence, treatment, cost, and outcomes is crucial to optimizing allocation of resources and providing high-quality, cost-effective care. This study will estimate the occurrence and cost of skin cancer screening and treatment, identify care disparities in skin cancer screening and treatment, and then identify skin cancer treatment trends utilizing the All-Payer Claims Databases.

Physician Scientist Career Development Award

Sherrie J. Divito, M.D., Ph.D.
Harvard University
Investigating Skin T Cells in Graft-versus-Host Disease

Stem cell transplantation (SCT) is potentially life-saving in patients with malignancy, but, its full potential is limited by graft-versus-host-disease (GVHD). GVHD occurs most commonly in skin and is fatal in approximately 15% of patients. We will investigate whether shifts in the skin microbiome during SCT activate the patient’s skin-resident memory T cells, which then produce GVHD. Our findings could potentially influence clinical approaches to SCT and GVHD.

Tamia A. Harris-Tryon, M.D., Ph.D.
Southwestern Med. School Univ. of Texas
Determining the Function of Resistin-like Molecule a (RELMa) in Cutaneous Host Defense

Though insight has been gained into which organisms reside on the surface of the skin—collectively termed the skin microbiota—little is known about how they impact the immune system. I aim to characterize the function of the resistin-like molecule, alpha (RELMa), a molecule that is produced in much greater quantity in the presence of the microbiota. I hypothesize that RELMa is an antimicrobial peptide at the skin surface.
John C. Selby, M.D.
University of Iowa
The Mechanobiological Paradigm of Keratinocyte Re-epithelialization: Effects of Matrix Stiffness

This project will use an in vitro model of wound re-epithelialization to demonstrate that the degree of mechanical stiffness of dermal extracellular matrix affects keratinocyte migration, activation, and differentiation. By extension, this project will also seek to validate the relevance of the Rho/ROCK signaling pathway in keratinocyte mechanosensation and the stiffness-induced deregulation of epidermal activation and differentiation that is manifest in chronic skin wounds.

Science of Human Appearance Career Development Award

Ka Wai Mok, Ph.D.
Icahn School of Medicine at Mt. Sinai
Identifying the Key Niche Signals for Hair Follicle Formation

Hair regenerative therapy by new hair formation may be the definitive hair loss treatment. Hair formation is orchestrated by dermal papilla (DP) cells. The current lack of understanding of what the initial DP inductive signals are prevents their direct therapeutic application. In this study, I will uncover the earliest essential hair inductive signals from DP for hair formation to advance the development of hair regenerative therapies.

Medical Dermatology Career Development Award

Joshua Arbesman, M.D.
Case Western Reserve University
Identifying Novel Preventive Approaches in Melanoma Using Genetics of Very High-risk Families

Melanoma rates have been increasing over the last decades. This project will study an unusual family who has developed many melanomas to isolate the mutated gene causing them. Then we will examine tissue specimens from noninherited melanoma tumors to determine how often this family-associated mutation occurs in these tumors as well. We will use drug screening libraries to identify a novel drug for preventing new melanoma development associated with this mutation.

Haley B. Naik, M.D.
University of California, San Francisco
Investigating the Role of the Skin Microbiome in Hidradentitis Suppurativa

Hidradentitis suppurativa (HS) is a chronic relapsing inflammatory disease with significant morbidity and no uniformly effective therapy. My project will systematically investigate the relationships between HS disease flares and alterations in the skin microbiome and immune response. Understanding these relationships may guide therapies aimed directly at modifying the skin microbiome and thus regulating the immune response, and thereby significantly improve management of this disease.
Women’s Health Career Development Award

Chung-Ping Liao, Ph.D.
Southwestern Med. School Univ. of Texas
Mechanisms Regulating Hair Pigmentation and Development

Hair is a tissue uniquely present in mammals, including humans. We recently discovered a new population of hair-generating progenitor cells and further found that they control hair pigmentation via a growth factor. My future research will investigate the mechanisms of hair pigmentation as well as gene regulation during hair development, and determine their relevance to the graying and loss of human hair.

Research Career Development Award

Willy Hugo, Ph.D.
University of California, Los Angeles
Innate Resistance to Immune Checkpoint Inhibition for Melanoma Therapy

A novel immunotherapy that is based on the concept of releasing the “brakes” that the cancer had placed on the immune response produces tumor regression for up to several years in about one-third of treated melanoma patients. I plan to study the mechanism(s) hindering the efficacy of the therapy in the remaining two-thirds of treated patients in order to identify new therapeutic regimen(s) to ultimately improve their survival.

Wenqing Li, Ph.D.
Brown University
Clinical and Genetic Epidemiology of Atypical Nevi

Using data from 51,529 participants in the Health ProfessionalsFollow-up Study, we will evaluate how sun exposure, pigmentary traits (hair color, eye color, sunburn susceptibility), genetic predisposition—individually and in interaction—modify the inherent melanoma risk of atypical nevi (AN), a potential melanoma precursor. We will also carry out a comprehensive investigation to characterize how the interplay of AN with known genetic and nongenetic factors alters the rate of new melanoma cases.

Roberto R. Ricardo-Gonzalez, M.D., Ph.D.
University of California, San Francisco
Study of Innate Lymphoid Cells Type 2 in the Skin

Scientists are increasingly recognizing atopic dermatitis as a complex dysregulation of both novel groups of immune cells that increase their presence in allergically inflamed skin. We will use genetic mouse models of atopic dermatitis to characterize iLC2s (type 2 innate lymphoid cells) and determine their role in skin health and disease. Ultimately, this study will advance the understanding of iLC2s in the skin and provide new therapeutic targets with the potential for treating allergic skin disease.

Lam C. Tsoi, Ph.D.
University of Michigan
Identification of Psoriasis-associated IncRNAs Through Systems Biology Framework

Although many psoriasis-associated loci have been revealed, it is still very challenging to identify the causal gene(s) in each disease locus. Recent studies show that long noncoding RNAs (lncRNAs) have distinct expression patterns in psoriatic skin, and that many of them are from psoriasis susceptibility regions. This investigation will use systems biology approaches to test the hypothesis that lncRNAs play important roles in psoriasis development.
Career Development Award Renewals

To receive a second or third year of funding, CDA recipients must provide evidence of substantial progress on their research projects and continued productivity in their academic and research careers. The following individuals have met the high standards for renewal of their awards.

Clinical Career Development Award in Health Care Policy/Public Health

Esther E. Freeman, M.D., Ph.D. – Year 2
*Harvard University*
Incidence and Determinants of Kaposi’s Sarcoma Despite Antiretroviral Treatment for HIV

Jonathan I. Silverberg, M.D., Ph.D., M.P.H. – Year 2
*Northwestern University*
Racial and Ethnic Health Care Disparities in Atopic Dermatitis

Clinical Career Development Award in Dermatologic Surgery

H. William Higgins, II, M.D., M.B.E. – Year 2
*Brown University*
The Clinical Epidemiology of Melanoma In Situ

Sherrif Ibrahim, M.D., Ph.D. – Year 2
*University of Rochester*
Chemoprevention of Squamous Cell Carcinoma in High-risk Patients

Margaret W. Mann, M.D. – Year 3
*Case Western Reserve University*
Refining Dermatologic Surgical Training in Residency

Joseph F. Sobanko, M.D. – Year 2
*University of Pennsylvania*
Appearance and Quality of Life in Dermatologic Surgery Patients

Yaohui Gloria Xu, M.D., Ph.D. – Year 3
*University of Wisconsin*
Archilles Heel in Melanoma—CDR-BP as a Potential Marker and Therapeutic Target

Physician Scientist Career Development Award

Brian C. Capell, M.D., Ph.D. – Year 3
*University of Pennsylvania*
The Role of Epigenomic Changes in Skin Senescence and Transformation

Eon Rios, M.D., Ph.D. – Year 3
*Stanford University*
Non-coding RNAs in Epidermal Homeostasis and Neoplasia

Iwei Yeh, M.D., Ph.D. – Year 3
*University of California, San Francisco*
Activating β-Catenin Mutations Cooperate with BRAFV600E to Promote Invasion

Medical Dermatology Career Development Award

Aaron Mangold, M.D. – Year 2
*Mayo Clinic, Scottsdale*
Prognostic Value of Inositol Polyphosphate 5-Phosphatase in Cutaneous Squamous Cell Carcinoma

Robert Micheletti, M.D. – Year 2
*University of Pennsylvania*
Cutaneous Vasculitis: Expanding Knowledge Through Exploration of Large Multidisciplinary Database

Kavita Sarin, M.D., Ph.D. – Year 3
*Stanford University*
Genetic Markers of Therapy Resistance in Advanced Basal Cell Carcinoma

Dermatopathology Research Career Development Award

Emily Y. Chu, M.D., Ph.D. – Year 3
*University of Pennsylvania*
Identification of Molecular Prognostic Markers for Thin Melanoma

Julia S. Lehman, M.D. – Year 2
*Mayo Clinic, Rochester*
Discovery and Validation of Tissue-based Biomarkers of Acute Graft-versus-Host Disease of the Skin
Dermatopathology Research Career Development Award (cont.)

Karolyn A. Wanat, M.D. – Year 2
University of Iowa
Pathogenesis of Cutaneous Leishmaniasis: Role of Mast Cells and Eosinophils

Research Career Development Award

Anubhav N. Mathur, M.D., Ph.D. – Year 2
University of California, San Francisco
Determining the Role of Regulatory T Cells in Skin Barrier Repair

Women’s Health Career Development Award

Rajesh L. Thangapazham, Ph.D. – Year 2
Uniformed Services University of the Health Sciences
Genes Regulating Hair Follicle Neogenesis, Growth, and Development

Megha M. Tollefson, M.D. – Year 3
Mayo Clinic, Rochester
Quality of Life of Parents and Caregivers of Children with Psoriasis

Research Career Development Award

Javed A. Mohammed, Ph.D. – Year 3
University of Minnesota
Keratinocytes Control Langerhans Cell Migration by Spatial Expression of RGD-binding Integrins

Han Peng, Ph.D. – Year 3
Northwestern University
Regulation of the Cell Cycle by MicroRNA’s: Quiescence Versus Proliferation

Poulkos I. Poulikakos, Ph.D. – Year 3
Icahn School of Medicine at Mt. Sinai
Understanding RAF Regulation to Develop Novel Strategies for Targeting RAF Signaling in Melanoma

Pediatric Dermatology Career Development Award

Yvonne E. Chiu, M.D. – Year 3
Medical College of Wisconsin
Clinical and Genetic Investigations of Pediatric Morphea

Jennifer T. Huang, M.D. – Year 3
Harvard University
Late Skin Effects in Children After Hematopoietic Stem Cell Transplantation
Fellowships

DF fellowships provide a one-year salary stipend of $30,000. Fellowships are available to individuals who have recently completed their dermatology residency training and are embarking on careers in academic research.

**Dermatologist Investigator Research Fellowship**

**David Y. Chen, M.D., Ph.D.**
Washington University
**Establishing the Role of DNA Methyltransferase in Hair Cycling and Alopecia**

Hair follicles undergo repetitive cycles of growth, involution, and stasis throughout life. Disordered cycling is thought to underlie many cases of alopecia. The goal of this study is to understand how DNA methylation affects the ability of hair stem cells to maintain the hair follicle’s normal capacity for this repeating cycle of proliferation and differentiation.

**Jennifer G. Gill, M.D., Ph.D.**
Southwestern Med. School Univ of Texas
**Characterization of Mechanisms Underlying Melanoma Brain Metastasis**

Metastatic melanoma is a devastating disease with a poor prognosis. This is due at least in part to melanoma’s remarkable propensity to spread to the central nervous system compared to other metastatic cancers. The goal of my research is to improve understanding of the mechanisms by which melanoma metastasizes to the brain, with the ultimate goal to identify therapeutic targets for potential treatment.

**Ian D. Odell, M.D., Ph.D.**
Yale University
**Study of Innate Immune Cells and Development of a Humanized Mouse Model of Scleroderma**

Scleroderma is an autoimmune disease that results in fibrosis of organs that include the skin and lungs. It has one of the highest mortality rates among autoimmune diseases. By modeling the human disease in mice, we plan to study how different parts of the immune system lead to this excessive fibrosis. Our ultimate aim is to help develop new targeted therapies for this devastating disease.

**Joy Wan, M.D.**
University of Pennsylvania
**Investigating Early and Late Onset Atopic Dermatitis**

Atopic dermatitis is a heterogeneous disease, and the identification of clinically meaningful subtypes of this disease could dramatically improve patient care. One method of classifying atopic dermatitis is by the age at which the disease starts. The features that distinguish early onset from late onset atopic dermatitis are unknown, and our investigation will study age of onset as it relates to disease course, associated illnesses, and genetic factors.
Grants

Dermatology Foundation research grants provide $20,000 to support the non-salary elements of a research project. Each year, the DF funds grants to support basic science, and medical and surgical studies with the potential to benefit the entire dermatologic community.

Patient Directed Investigation Grant

William M. Lin, M.D.
Harvard University
Image Analysis of Sentinel Lymph Node Biopsies in Melanoma Patients

Sentinel lymph node (SLN) mapping is the gold standard for determining if melanoma has spread locally to the lymph node. This provides staging information that helps predict survival and guide treatment. Currently, evaluating SLNs is a manual, microscope-based, time-intensive procedure that is vulnerable to mistakes. We are creating a computational program to help automate melanoma detection in SLNs.

Research Grant

Aaron M. Drucker, M.D.
Brown University
Validation of the CAPS (Clinical extent, Area, Pruritus, Sleep) Eczema Severity Score

Currently available tools for the assessment of atopic dermatitis (AD) severity are cumbersome. We have developed the Clinical extent, Area, Pruritus, Sleep (CAPS) tool as a more efficient outcomes measure. The purpose of this study is to validate the CAPS for use in patients with AD. We hypothesize that it will be a valid and efficient tool for measuring severity in AD.

Carolyn S. Lee, M.D., Ph.D.
Stanford University
Characterization of Kinetochore and Kinistrin-interacting Proteins Disrupted in Skin Cancer

Cutaneous squamous cell carcinoma (SCC) is the second most common human cancer and a model for epithelial malignancies in general. We recently identified frequent mutations in kinetochore genes that include KNSTRN, a previously unappreciated human oncogene. This investigation focuses on understanding how mutant KNSTRN exerts its protumorigenic impacts and will begin exploring the role of other kinetochore genes that are frequently mutated in SCC.

Tobias F. I. Schatton, Pharm.D., Ph.D.
Harvard University
Significance of Melanoma Cell-intrinsic PD-1 in Tumor Growth and Clinical Biomarker Development

Therapeutic antibodies targeting the PD-1 pathway have shown remarkable efficacy in treating melanoma. However, the large majority of patients do not respond to therapy, highlighting the need for mechanistic insights and biomarkers that predict and help optimize clinical benefit. This project will define melanoma cell-intrinsic PD-1 signaling networks and evaluate their utility as biomarkers of response to PD-1 blockade and as targets for novel combination therapies.

Cory L. Simpson, M.D., Ph.D.
University of Pennsylvania
The Role of Autophagy in Epidermal Differentiation, Morphogenesis, and Pigmentation

Autophagy is the process by which cells identify and degrade aggregates of toxic protein and damaged organelles. I will utilize a three-dimensional human skin model to determine the molecular mechanisms of epidermal autophagy. Specifically, I will test the hypothesis that autophagy is essential to normal development of human epidermis, which involves regulated organelle degradation, and the epidermal response to stressors including oxidative damage and ultraviolet radiation.

Nicholas Theodosakis, Ph.D.
Yale University
Identifying the Keratinocytic Determinants of Blaschkolinear Inflammatory Disorders

Many skin inflammatory disorders occur along keratinocyte precursor migration lines. We are focusing on these linear disorders (including ILVEN, linear lichen planus, and linear discoid lupus erythematosus), some of which also present systemically. By identifying keratinocyte mutations that cause linear lesions, we hope to explain how inflammation is triggered. We plan to find these mutations through whole exome sequencing, and characterize their associated inflammation.
**DF Mission**

The Dermatology Foundation is the leading private funding source for skin disease research and career development of physicians and scientists.

The DF provides research support that helps develop and retain tomorrow’s teachers and researchers in dermatology, enabling advancements in patient care.

**Research Awards Program**

Detailed application instructions are available on the DF website and research award applications are due by October 15th of each year. All proposed research must be conducted under the sponsorship of a department or division of dermatology at a U.S. academic institution.

Each application is competitively reviewed and ranked by the Foundation’s Medical and Scientific Committee and its Clinical/Medical/Surgical/Dermpath Panel according to scientific merit and the potential to advance the specialty. This includes a diligent assessment of each candidate’s ability to become one of tomorrow’s thought leaders in dermatology.

To learn more about the Foundation’s Research Awards Program, visit dermatologyfoundation.org/rap or contact the DF at 847-328-2256.
To become a member, visit the DF Contribution Center at dermatologyfoundation.org.