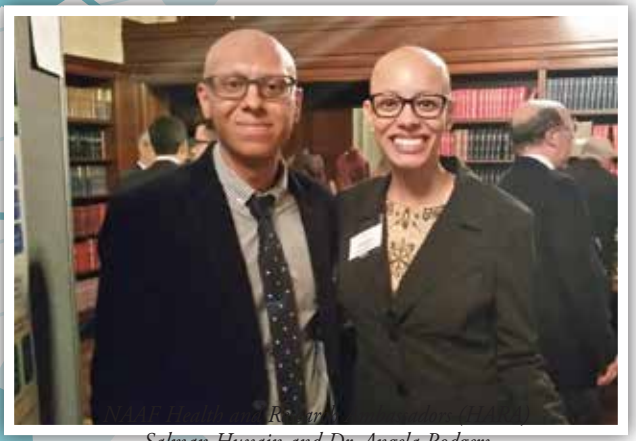
A New Era in Alopecia Areata Research

2016 Alopecia Areata Research Summit Highlights

The sixth Alopecia Areata Research Summit since 2008, *Building & Crossing the Translational Bridge*, brought together leading experts from a host of fields and organizations to discuss current research progress and identify new opportunities to move effective therapeutics for alopecia areata from discovery to market. The excitement about the numerous alopecia areata therapies in development and future clinical trials was palpable. The 120 Summit participants who gathered November 14 and 15, 2016 in New York City included almost equal representation from **expert alopecia areata researchers** (26), **young investigators** with an interest in alopecia areata (26), **experts in related fields** (24), and **biopharmaceutical industry representatives** (24). We also benefited from participation by nine **patient stakeholders** and eight **representatives from governmental and other organizations**, including three Institutes within the National Institutes of Health (NIH), the U.S. Food and Drug Administration (FDA), the Patient-Centered Outcomes Research Institute (PCORI), Advancing Innovations in Dermatology (AID), and the National Health Council (NHC). All told, more than 40 academic institutions and research centers from the United States and eight countries across the globe were represented.



Salman Hussain and Dr. Angela Rodgers

Our three exceptional co-chairs, Drs. Angela Christiano, John Harris, and Maria Hordinsky, worked together to develop a dynamic program focused on: 1) the current state of alopecia areata research; 2) clinical trials, epidemiology and assessment tools; 2) emerging research technologies and therapeutic targets; 3) autoimmune and immunological aspects of alopecia areata and related conditions; 4) genetics and the hair follicle microenvironment; and 5) advancing treatments to patient care.

CURRENT STATE OF ALOPECIA AREATA RESEARCH

Presentation Highlights

Dr. William Ju, President of Advancing Innovations in Dermatology, discussed ways to support the emerging alopecia areata product development ecosystem. He highlighted the role of catalysts in bringing together experts from both the technical and financial arenas to define unmet medical needs, understand disease pathophysiology and develop outcome assessment tools.

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Dr. Maria Hordinsky, from the University of Minnesota Medical School, provided an overview of current treatment practices for adult and pediatric patients with alopecia areata in the absence of FDA-approved therapies, emerging treatment options and the need for placebo-controlled trials to determine the risks, benefits, and durability of new therapeutic agents such as JAK inhibitors.

Dr. David Norris, from the University of Colorado School of Medicine, summarized the preceding six research summits, which laid the groundwork for the genetic and immunological studies, clinical trial tools (outcome measures, biomarkers, the Core Uniform Protocol), and funding streams resulting in the current state of alopecia areata research.

Dr. Angela Christiano, from Columbia University Medical Center, presented an update on the preclinical studies that paved the way for early clinical investigation in patients. These include Genome-wide Association Studies (GWAS) and gene expression studies that uncovered biomarker signatures that can be used to follow response to treatment, immunological studies focusing on the role of CD8+ T cells in mediating disease, and the use of JAK inhibitors to prevent and treat alopecia areata in the C3H/HeJ mouse model.

Dr. Ralf Paus, from the University of Manchester, provided an overview of immune privilege concepts and how they relate to alopecia areata, including the physiological role of gamma delta T cells in the immune cascade in alopecia areata. He communicated that identifying auto-antigens and elucidating the roles of immune cell types are critical for restoring peripheral privilege in alopecia areata.

Dr. Madeleine Duvic, from the University of Texas MD Anderson Cancer Center, shared the accomplishments and current enrollment status of the Alopecia Areata Registry, Biobank, and Clinical Trials Network (Registry), the largest collection of alopecia areata data and biological samples in the world available to investigators studying the disease and pharmaceutical companies developing treatments.

Research Priorities

- Utilize 23andMe or similar genotyping databases to study additional alopecia areata patient cohorts and potentially double the number of identified risk alleles for deep sequencing analysis.
- Perform whole exome and targeted genomic sequencing for risk variants in alopecia areata.
- Study the microbiota correlated with alopecia areata and identify mechanism(s) of microbiome-associated induction and development of alopecia areata.
- Investigate the role of endoplasmic reticulum stress and unfolded protein responses in alopecia areata.
- Study the role of autophagy and pigmentation in the pathogenesis and progression of alopecia areata.

CLINICAL TRIALS, EPIDEMIOLOGY AND ASSESSMENT TOOLS

Presentation Highlights

Study Design & Outcome Measures

Dr. Elise Olsen, from Duke University Medical Center, presented the Alopecia Density and Extent Score (ALODEX), a new visual aid for assessing hair loss in alopecia areata that can track absolute hair loss and small changes in density that may otherwise go undetected with the SALT score.

Dr. Leslie Castelo-Soccio, from the University of Pennsylvania School of Medicine, discussed using computer vision to quantify pediatric alopecia areata using a photo library of more than 800 images to develop a new algorithm. The algorithm provides a SALT score but can also offer other quantitative and visual information. The goal is to develop an app for the use of patients and providers.

Dr. Tito Mendoza, from the University of Texas MD Anderson Cancer Center, presented the Alopecia Areata Symptom Index Scale (AASIS), a 13-item questionnaire that uses a 0 to 10 scale. Dr. Mendoza provided an update on the iterative process of psychometric validation and future directions, which include qualitative interviews and cognitive debriefings.

Dr. Amy Paller, from Northwestern University Feinberg School of Medicine, discussed important factors to consider

when conducting pediatric clinical trials including challenges of recruitment, parental consent, IRB approval, scheduling, cooperation, and outcome measures.

Epidemiology

Dr. Joel Gelfand, from the University of Pennsylvania Perelman School of Medicine, shared epidemiology considerations in clinical trial design, including the development of an analysis plan with defined exposure, outcomes, and confounding factors to minimize selection and information bias.

Mr. Jordan Thompson, a research fellow at Brown University Warren Alpert Medical School, presented a cross-sectional analysis from the Nurses' Health Study (NHS) and Nurses' Health Study II (NHSII) showing increased odds of alopecia areata based on self-reported diagnosis and race, in black and Hispanic women.

Clinical Trials with JAK Inhibitors

Dr. Julian Mackay-Wiggan, from Columbia University Medical Center, reported results with biomarker analysis using gene expression from pilot trials at Columbia University to test the efficacy of Jakafi (ruxolitinib, a JAK 1/2 inhibitor), Xeljanz (tofacitinib, a pan-JAK 3 inhibitor) and Orencia (abatacept, CTLA4-Ig) to treat alopecia areata. Seventy-five percent of patients with moderate to severe alopecia areata had significant hair regrowth after treatment with Jakafi and similarly, approximately 65 percent experienced hair regrowth after treatment with Xeljanz. One patient out of fifteen responded to treatment with Orencia, suggesting that it may not be broadly effective across alopecia areata patients, but could be highly effective in sub-populations with genetic susceptibility at the CTLA4 locus.

Dr. Wilma Bergfeld, from Cleveland Clinic, presented results from a retrospective study to test the efficacy of Xeljanz in severe recalcitrant alopecia areata. Seven out of thirteen patients (54%) remained on therapy for more than three months and experienced hair regrowth.

Dr. Justin Ko, from Stanford University School of Medicine, shared results from a Stanford/Yale case series of 66 patients with moderate to severe alopecia areata treated with Xeljanz. After three months of treatment, one-third of patients experienced more than 50 percent hair regrowth.

Dr. Brett King, from Yale School of Medicine, reported results of off-label use of Xeljanz alone or with pulsed prednisone to treat ninety adults and thirteen adolescents with severe alopecia areata. Approximately 60 percent of adults and 75 percent of teenagers experienced hair regrowth.

Dr. Elise Olsen, from Duke University Medical Center, presented promising results from a study evaluating ruxolitinib (INCB018424) 1.5% phosphate topical cream in 12 patients with moderate to severe alopecia areata. Six out of twelve patients experienced 50 percent hair regrowth at the end of 24 weeks, encouraging further development of topical JAK inhibitors.

Dr. Alice Gottlieb, from New York Medical College, shared lessons and cautions from studies of topical JAK inhibitors in psoriasis and recommended future trials develop early formulation data, assess systemic exposure with penetration enhancers using subtotal inunction studies, and consider future stratification of patients based on molecular subtypes.

Research Priorities

- Investigate response to therapy among different ethnic groups.
- Improve privacy and emotional sensitivities of survey tools to validate potentially underestimated prevalence and incidence statistics.
- Develop patient-centered clinical outcome assessment tool for regulatory approval and to determine a product's value to patients and payers.
- Encourage and support medical professionals in obtaining IRB approval to prospectively capture efficacy and safety data for alopecia areata patients treated off-label with JAK inhibitors and other potential therapies.
- Study the roles of dendritic cells, antigen-presenting cells, natural killer cells, and mast cells in disrupting immune privilege before and after treatment with JAK inhibitors and other potential therapies.
- Encourage free, unrestricted access of new hair loss quantification technologies to accelerate testing, validation and development.
- Encourage clinical research focused on alopecia areata in children, as well as treatment effects on regrowth of eyelashes and eyebrows. Study disease burden and annual costs related to false eyelashes, eyebrows, and cranial prostheses incurred by alopecia areata patients.

EMERGING TECHNOLOGIES AND TARGETS

Presentation Highlights

Dr. Ali Jabbari, from Columbia University Medical Center, reported on the utility of the Alopecia Areata Disease Activity Index (ALADIN) biomarker tool to track disease status and potentially predict disease response early in the course of treatment. He discussed its utility predicting and tracking clinical responses in patients with moderate to severe alopecia areata who were treated with Jakafi and Xeljanz in two open label clinical trials.

Dr. Zhenpeng Dai, from Columbia University Medical Center, shared results showing that blockade of the Interleukin 7 pathway and its receptor IL-7Rα can reverse early onset in alopecia areata mice and suggested it may be a potential new therapeutic target for alopecia areata.

Dr. Amos Gilhar, from Technion-Israel Institute of Technology, presented data showing that treatment with Alpha-GalCer, a specific ligand for human and mouse natural killer T (NKT) cells, prevented development of alopecia areata in the humanized mouse model and may possess therapeutic and preventive effects.

Dr. Pantelis Rompolas, from University of Pennsylvania Perelman School of Medicine, reported on stem cell dynamics during hair regeneration in mice using novel imaging technologies. He summarized that stem cells are spatially organized in the hair follicle, dermal input is absolutely required, stem cell loss does not impair regeneration, and non-hair epithelial cells may acquire a hair fate by entering the niche.

Dr. Jerry Shapiro, from New York University Langone Medical Center, presented a data review of micro-needling and platelet rich plasma (PRP) therapy, noting that PRP potentially contains nutrients for the growing follicle and micro-needling may stimulate dermal papilla and stem cells, which could support hair growth. Further studies are needed to determine whether these therapies offer benefit to patients with alopecia areata.

Research Priorities

- Study T-cell receptor diversity and the role of CD4 and CD8 T cells in alopecia areata.
- Apply transcriptional profiling studies in alopecia areata biomarkers to define molecular subtypes and new therapeutically targetable pathways.
- Continue research to advance understanding of mechanisms of disease, including the roles of dendritic cells, antigen-presenting cells, natural killer cells, mast cells and early innate immune response, which could lead to discoveries for early intervention, prevention and restoration of immune privilege.
- Develop novel imaging techniques to investigate the morphological changes in the hair follicle that occur during onset of alopecia areata, and as part of dystrophic catagen and dysregulated hair cycling.

AUTOIMMUNITY AND IMMUNOLOGY

Presentation Highlights

Elusive Alopecia Areata Autoantigens

Dr. Yaron Tomer, from Albert Einstein College of Medicine, shared how genetic studies focused on small molecule targeting in autoimmune thyroid diseases (AITD) have paved the way to blocking antigen presentation as a novel therapeutic approach to AITD.

Dr. Keisuke (Chris) Nagao, from the Center for Cancer Research at the National Cancer Institute, discussed how stress-induced production of chemokines by hair follicles regulate skin dendritic cell trafficking, highlighting hair follicles as immunoregulatory structures.

Dr. Marta Bertolini, from the University of Münster, presented an ongoing project to further characterize alopecia areata–specific T-cell receptors (TCRs) by isolating them directly from the skin of alopecia areata patients to identify antigenic peptides (fragments of protein) which mimic the suspected (auto)antigens. This could serve as a basis for TCR-specific lymphocyte elimination immunotherapy in alopecia areata and may also provide prognostic biomarkers.

Dr. Annemieke de Jong, from Columbia University Medical Center, discussed the use of Next-Generation T-cell receptor (TCR) sequencing in alopecia areata mice and humans. Several TCRs show similarities in lesional skin and blood, which supports previous genetic and immunological data implicating an antigenic driver in alopecia areata.

Dr. Alessandro Sette, from La Jolla Institute for Allergy & Immunology, presented a large-scale screening study for antigen discovery in alopecia areata using the Immune Epitope Database (IEDB). Human leukocyte antigen (HLA)

typing performed from the blood of eighteen alopecia areata patients identified over 300 potential peptide targets that will be synthesized to conduct a large scale screen.

Dr. Adam Schrum, from Mayo Clinic School of Medicine, presented a study using a novel matrix analysis (called "PiSCES") to observe the network activity of TCR signaling proteins in alopecia areata that revealed a subnetwork of basal T cell signaling complexes which could provide new molecular candidates for pharmacologic targeting.

Immunology of the Skin

Dr. Daniel Kaplan, from the University of Pittsburgh, shared the important function of keratinocytes in determining the epidermal occupancy of dendritic cells and resident memory T cells. Targeting the transforming growth factor beta (TGFB) signaling pathway can perhaps be used to target these cells in alopecia areata.

Dr. Michael Rosenblum, from the University of California, San Francisco, discussed the role of regulatory T cells (Tregs) in hair follicle biology. Tregs may influence hair regeneration as well as immune responses in alopecia areata.

Dr. Niroshana Anandasabapathy, from Brigham & Women's Hospital and Harvard Medical School, provided new insights into skin dendritic cell function, highlighting the suppression of cytokine signaling 2 (SOCS2) as a novel immunomodulatory target in autoimmune disease.

Dr. Michel Gilliet, from the University Hospital of Lausanne (CHUV) focused on skin microbiota, sharing the central role it plays in initiating inflammation in the skin by recruiting and activating plasmacytoid dendritic cells (pDCs). Certain inflammatory skin diseases are characterized by chronic pDC activation related to sustained antimicrobial peptide production.

Dr. Joel Dudley, from Icahn School of Medicine at Mount Sinai, provided an exhilarating lecture on the recent advances in high-throughput technologies, the growth of clinical data warehouses, and the rapid accumulation of biomedical knowledge that can be accessed by tapping sources of 'big data'. These developments provide unprecedented opportunities to solve key problems in genomics and precision medicine through the development and application of translational and biomedical informatics methodologies.

Commonalities Across Autoimmune Diseases

Dr. Teresa DiLorenzo, from Albert Einstein College of Medicine, discussed the striking similarities between Type 1 diabetes and alopecia areata, such as the expression of associated genes in the target organ and the importance of CD8+ T cells, as well as how collaboration between these two fields could yield conceptual advances in both fields.

Dr. Lynn Petukhova, from Columbia University Medical Center, presented an ongoing study to identify comorbidities among alopecia areata patients in the Alopecia Areata Registry, Biobank & Clinical Trials Network—a cohort that has been analyzed for genetic variants—to validate existing data and conduct phenome-wide association studies using electronic health record data.

Dr. John Harris, from University of Massachusetts Medical School, shared the commonalities between alopecia areata and vitiligo, including interferon-gamma (IFNg) gene expression and expression of CXCL9, CXCL10, and CXCL11 chemokines. He noted the location of the inflammation is what differs, not the infiltrate itself, and systemic drugs like JAK inhibitors should work in both conditions.

Dr. Brian Kim, from Washington University School of Medicine, discussed novel therapeutic strategies targeting neuronal type 2 cytokine signaling in atopic dermatitis and potential common mechanisms for alopecia areata, since nerve bundles are also closely associated with the hair follicle.

Dr. Emma Guttman-Yassky, from Icahn School of Medicine at Mount Sinai, shared a study profiling inflammatory cytokines and pathways in alopecia areata, which revealed Th1-type cytokines, Th2-type cytokines, and Interleukin-23 activation. She noted that alopecia areata may present with kinetics similar to atopic dermatitis in which immune cytokines suppress formation of hair keratins. Treatment with drugs aimed at specific cytokine inhibition may help dissect the mechanisms underlying alopecia areata.

Research Priorities

- Leverage available technology in infectious diseases and allergies to generate targeted experimental data using alopecia areata blood samples to screen the epitope sets predicted from the Immune Epitope Database (IEDB).
- Identify T cell receptor antigens/epitopes driving the disease, which could be used as predictive biomarkers.

- Investigate parallels between regional beta cell destruction in alopecia areata and Type 1 diabetes using humanized models of disease in immunodeficient models such as the NOD/SCID mouse.
- Develop therapeutic targeting strategies related to the suppression of cytokine signaling 2 (SOCS2) for immune modulation using single cell sequencing in immune cell populations to link gene expression signatures to disease states.
- Investigate the role of interferon alpha production by plasmacytoid dendritic cells in alopecia areata.
- Compare differentially expressed proteins in hair follicles and nerves using proteomic approaches.
- Utilize large electronic health record cohorts to study family history associations among patients with alopecia areata.

GENETICS AND THE HAIR FOLLICLE MICROENVIRONMENT

Presentation Highlights

Dr. George Cotsarelis, from the University of Pennsylvania Perelman School of Medicine, discussed the role of micronutrients such as vitamin D, zinc, iron and vitamin A in creating the optimum conditions for hair shaft formation and their potential role in alopecia areata.

Dr. Michael Rendl, from the Icahn School of Medicine at Mount Sinai, shared a study to catalogue gene expression from different cell populations in hair follicle morphogenesis using transcriptome-wide analysis by next-generation RNA deep-sequencing. He noted that the www.Hair-GEL.net database can be used as a resource to search for candidate alopecia areata genes and antigens and determine where they are localized in the hair follicle.

Dr. Natalia Botchkareva, from the University of Bradford, shared data from an ongoing study comparing microRNAs in affected versus unaffected skin of alopecia areata mice. The downregulation of miR-486 and miR-451 in alopecia areata–affected mouse skin suggests their putative role in prevention of the collapse of hair follicle immune privilege in normal anagen hair follicles.

Dr. Tiffany Scharschmidt, from the University of California, San Francisco, discussed the role of hair follicles in establishing tolerance to skin commensal microbes, following the rapid accumulation of regulatory T cells into neonatal skin and the importance of bacteria-specific factors in establishing host-commensal tolerance.

Dr. Anastasia Khvorova, from the University of Massachusetts Medical School, provided an overview of recent advances in chemistry allowing for efficient delivery and modulation of gene expression in skin, both locally and systemically, through small (or short) interfering RNA (siRNA) and the potential to target alopecia areata–specific genes through use of this technology.

Research Priorities

- Study the role of micronutrients deficiencies (vitamin D, zinc, iron) in alopecia areata.
- Investigate the role of skin commensal microbes in alopecia areata pathogenesis.
- Utilize the www.Hair-GEL.net resource to search for candidate alopecia areata genes and antigens and determine where they are localized in the hair follicle.

ADVANCING TREATMENTS TO PATIENT CARE

Presentation Highlights

Clinical Perspective

Dr. Bozena Michniak-Kohn, from the Ernest Mario School of Pharmacy at Rutgers University, shared new methods aimed at targeted topical drug delivery via microneedles and TyroSpheres using nano formulations that can encapsulate cargo and deliver it specifically to the hair follicles, dermis and epidermis.

Dr. Raphael Clynes, from Columbia University Medical Center and Bristol-Myers Squibb Co., discussed new ways of developing immunological biomarkers aiding in diagnostic evaluation and guiding therapy in the immuno-oncology field. The application of transcriptional profiling studies in alopecia areata biomarkers may serve as an informative pharmacodynamic signal as well as advancing our understanding of disease subtypes and therapeutically targetable pathways.

Dr. Antonella Tosti, from the University of Miami, provided data on the use of statins (a group of drugs called HMG CoA reductase inhibitors) for the treatment of alopecia areata, as well as their potential utility to prevent relapse after response to other therapies.

Dr. Natasha Mesinkovska, Chief Scientific Officer of the National Alopecia Areata Foundation and Director of Clinical Research at UC Irvine School of Medicine, reviewed unconventional therapies gaining popularity among the alopecia areata patient community that may warrant further investigation, including Allegra (fexofenadine) targeting mast cells, cryotherapy (ultra-cold treatments) as a potential adjunct therapy, and low-dose naltrexone (opiate antagonist) targeting the release of pro-inflammatory cytokines in autoimmune disorders.

Patient Perspective

Dr. Angela Rodgers—a National Alopecia Areata Foundation (NAAF) support group leader, a prior NAAF Health and Research Ambassador, a resident physician, and a woman diagnosed with alopecia areata over 20 years ago—shared the evidence-based mental health burden of alopecia areata as well as the personal reasons why a breakthrough treatment would be meaningful to the entire alopecia areata community. Dr. Rodgers noted that developing a breakthrough treatment for those with alopecia areata will not only combat the physical aspects of the disease, but could also improve the psychological well-being of the community.

Dr. Eleanor Perfetto, Senior Vice President of Strategic Initiatives at the National Health Council, provided an overview of recent advances in patient engagement in research, including patients' and advocates' roles in patient focused-drug development (PFDD) and patient-reported outcomes (PROs). Dr. Perfetto mentioned that patients are experts in their disease and that studies should be patient-directed or conducted in partnership with patients to invite the most active participation.

Industry Perspective

A panel of representatives from nine pharmaceutical companies (Aclaris Therapeutics, BiologicsMD, Concert Pharmaceuticals, Gilead Sciences, Incyte, Legacy Healthcare, LEO Pharma, Pfizer, and RXi Pharmaceuticals) was convened to discuss the challenges and opportunities of advancing potential drugs to patient care in alopecia areata. These stimulating discussions had several common underlying themes, including the challenges posed by the lack of regulatory approval and commercialization precedent as well as the shortage of open-label trials with a placebo/standard of care control.

The group agreed that collaboration is key to overcoming these challenges and translating concepts into FDA-approved treatments. NAAF can play an important role in facilitating studies to define clinically meaningful endpoints as outcome measures, providing input to regulators on endpoints and benefit/risk ratios as well as assisting patients to provide relevant, useful feedback for the upcoming Patient-Focused Drug Development meeting for alopecia areata. The NIH can play an important role in supporting small, early-phase trials to advance drug candidates to the point that they can be further developed by the industry. The industry can support such NIH-funded efforts by providing access to drugs for testing.

FUNDING AND PARTNERSHIP OPPORTUNITIES

Presentation Highlights

Dory Kranz, Chief Executive Officer of the National Alopecia Areata Foundation, shared NAAF's ongoing initiatives to incorporate the voice of the patient in alopecia areata research, including the preparation of the NAAF community for the upcoming Patient-Focused Drug Development meeting and the creation of a Patient-Reported Outcome (PRO) Consortium to develop a single, consensus-defined PRO instrument that can be shared across industry partners.

Dr. Devanand Jillapalli, Medical Officer in the Office of Orphan Products Development at the U.S. Food & Drug Administration (FDA), discussed important qualifications for Orphan Drug Designation related to disease subsets and shared relevant FDA funding opportunities, including the Clinical Trial Grant Program and Natural History Grant Program.

Dr. Ricardo Cibotti, Director of the Skin Immunobiology and Immune-Mediated Diseases of Skin Program at the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), shared how alopecia areata is a rapidly expanding area of NIAMS research. He also reviewed the various funding opportunities to support clinical trials, noting that industry collaboration to provide access to study drugs is critical for these grants.

Dr. Kara Odom Walker, Deputy Chief Science Officer at the Patient-Centered Outcomes Research Institute (PCORI), provided an overview of comparative effectiveness research (comparing two or more options for prevention diagnosis treatment) and related funding opportunities in five areas: prevention, diagnosis and treatment; improving healthcare; communication; health disparities; and accelerating methodological research.

CLOSING REMARKS

This intensive two-day summit fostered innovation and collaboration across multiple disciplines through a series of key research presentations followed by substantive question-and-answer sessions and discussions. Inclusion of women, minorities, and people with disabilities is a NAAF priority, and the meeting drew a diverse and balanced group of knowledgeable attendees. Several early-career investigators brought fresh ideas and new talent, and individuals with alopecia areata and family members provided an important bridge between those studying the disease and those personally affected by it. Research in alopecia areata is at an unprecedented juncture with an expanding number of potential treatments in the pipeline, and participants left feeling invigorated about the possibilities that lay ahead.

Alopecia areata research summits are part of the National Alopecia Areata Foundation's (NAAF) main strategic initiative, the Alopecia Areata Treatment Development Program (TDP). Many of the basic, translational and clinical research accomplishments highlighted above have been part of the TDP, with NAAF either providing direct funding or acting as a concierge, leveraging our available research resources and clinical partnerships. The strategic goal of NAAF is to produce a safe, effective, affordable treatment beneficial to the millions of people with alopecia areata. This summit celebrated another milestone on the focused path toward achieving that goal. Many of the Research Priorities proposed and discussed are projects that are in progress. NAAF has and will continue to provide the support and leadership toward accomplishing these Research Priorities to help bring effective therapies for alopecia areata to market and enhance the understanding of disease. We look forward to future discoveries.

Please contact us if you can help in any way or are interested in applying for funding to study any of the Research Priorities mentioned above. ■

The National Alopecia Areata Foundation gratefully acknowledges the following sponsors for their support of the 2016 Alopecia Areata Research Summit.

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