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The 2017 National Psoriasis Foundation Research Symposium

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From August 3–5, 2017 the National Psoriasis Foundation (NPF) hosted the latest installment of its biennial Research Symposium in Chicago, IL. The Symposium brought together more than 120 representatives from academia, industry, and the National Institutes of Health, and ran alongside NPF's National Volunteer Conference, which included more than 200 psoriatic disease patients and family members. Researchers and patients followed separate meeting tracks but had significant opportunity to interact, both formally through a shared "Together for a Cure" reception (including 49 scientific posters) and panel discussions, and informally during breaks and meals. Thus, the Symposium served as both an update of the latest in the field of psoriatic disease research and an opportunity for researchers to gain insight into the patient perspective on their work. In addition, NPF's Psoriatic Disease Research Ambassadors (PDRA) program launched with a half-day pre-meeting to establish 10 patient representatives of NPF research in markets around the country. This brief report provides a summary of activities at the three-day event.

Psoriatic Disease Research Ambassadors Pre-Meeting

Immediately prior to the 2017 NPF Research Symposium, the inaugural cohort of Psoriatic Disease Research Ambassadors (PDRAs) came together for a six-hour kick-off meeting. The PDRA program is an NPF-initiative intended to equip a small group of patients with the training and resources necessary to inject the patient perspective into multiple stages of the psoriatic disease research process. The ultimate objective is to provide guidance for comparative effective research studies that have the greatest relevance to patients. For the kick-off meeting, the goals were four-fold:

1. Give PDRAs living in distant metro areas the chance to meet each other and NPF staff.

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2. Introduce PDRA's to ongoing NPF programs as well as active and recently-funded research grants and fellowships in their regions.
3. Educate PDRA's around program goals and expectations with a particular focus on comparative effectiveness research and researcher engagement.
4. Give PDRA's the chance to ask questions about the program and to offer suggestions for what resources will help make the program a success.

The kick-off meeting provided a valuable chance to establish a good foundation for future success of the PDRA program and for PDRA's to get the chance to shape the program that they themselves are a part of. High priority needs voiced by the PDRA's included access to communication resources and training (e.g. elevator speeches and methods for disseminating notable achievements), easy-to-distribute marketing materials (e.g. business cards), familiarity with research grant application components and available funding mechanisms (from both NPF and NIH), and social media resources. NPF staff are in the process of integrating PDRA suggestions into program activities. Following the kick-off meeting, all PDRA's had the opportunity to attend the 2017 Research Symposium as patient representatives.

Research Symposium Keynote and Scientific Sessions

The Research Symposium began with a keynote address from John O'Shea, MD from the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS). Dr. O'Shea set the stage for the rest of the Symposium by discussing the development of targeted therapeutics for immune-mediated disease and his specific experience identifying and targeting the JAK/STAT pathway. From there, the majority of the Symposium agenda was occupied by four scientific sessions. Scientific sessions were focused on broad topics (immunology, psoriasis, psoriatic arthritis, and the therapy pipeline) and each included two 25 minute invited talks followed by two 12 minute presentations from selected abstracts.

Session 1 – Immunology

The first scientific session showcased recent advances in our understanding of psoriatic disease as an immune-mediated disease, with a particular focus on the cytokine IL-17. Sarah Gaffen, PhD from the University of Pittsburgh introduced the role of IL-17 family cytokines in healthy defense against infection and the pathology of immune-mediated inflammatory skin disease. From there, Iannis Adamopoulos, DPhil from the University of California, Davis, moved the conversation from skin to joints by discussing the role of IL17 in bone remodeling and psoriatic arthritis. Selected abstract presentations from Alicia Mathers, PhD from the University of Pittsburgh and Gerard Wong, PhD from UCLA then demonstrated the potential of further exploration into the immunology underlying psoriatic disease. Dr. Mathers' presentation focused on a novel inflammatory circuit involving the P2X7 receptor and IL-23, while Dr. Wong's presentation introduced the steric disruption of dsDNA binding to the antimicrobial peptide LL-37 as a possible therapeutic intervention.

Session 2 – Psoriasis

Building on the relatively broad foundation of immunology established during the Keynote and Session 1, Session 2 focused on skin psoriasis and metabolic and cardiovascular comorbidities. Wilson Liao, MD from UCSF reviewed our historical understanding of the genetic basis of psoriasis and recent advances in functional genomics that continue to push forward our understanding of psoriasis etiology. Sam Hwang, MD, PhD from the University of California, Davis then discussed novel targets for the treatment of psoriasis with particular attention to disruption of migration of immune cells to the skin directed by the chemokine CCL20. The first selected abstract presentation came from Denis Mogliencko, PhD, from the *Université de Lille*, France who suggested a connection between IL-23 signaling and high-fat diet in the onset of comorbid metabolic disease. With the second selected abstract, Nehal Mehta, MD, FAHA, from the National Heart Lung and Blood Institute shared work looking at the relationship between psoriasis skin symptoms and vascular inflammation, with compelling data to suggest that a reduction in skin symptoms may ultimately reduce risk for developing cardiovascular disease.

Session 3 – Psoriatic Arthritis

The third scientific session focused on psoriatic arthritis. Christopher Ritchlin, MD, MPH reviewed imaging, cellular, serum, and molecular biomarkers for psoriatic arthritis. Alexis Oddie, MD, MSCE then reviewed risk factors for psoriatic arthritis, from genetics to environmental influences. Together, these talks painted a picture of the heterogeneous and unpredictable nature of psoriatic arthritis, but provided hope through roadmaps for future translational and clinical studies to help get us closer to a day when psoriatic arthritis can be predicted and treated (or prevented) before irreversible joint damage ensues. In sync with this roadmap, selected abstracts from Julia Manasson, MD, from NYU and Robert Winchester, MD, from Columbia shared recent data exploring a possible role of the microbiome in psoriatic arthritis, and the connection between specific disease genotypes and phenotypes, respectively.

Session 4 – Therapeutic Pipeline

While scientific Sessions 1, 2, and 3 prioritized the fundamentals of psoriatic disease, Session 4 focused on available treatment options and drugs in the pipeline. Kristina Callis Duffin, MD from the University of Utah and Laura Coates, MBChB, PhD from the University of Oxford presented an overview of therapies for psoriasis and psoriatic arthritis, respectively, and both discussed the nuances of treating psoriatic disease “to target.” Having a long list of FDA-approved treatment options is one thing, but integrating them into everyday treatment practice is another. Peter Marinkovich, MD from Stanford and Siba Raychaudhuri, MD from the University of California, Davis and VA Sacramento Medical Center then connected the dots between basic science discovery and progression of therapies to the patient bedside. Dr. Marinkovich is exploring topical administration of benzamil for the treatment of psoriasis following his discovery of a therapeutic target, Rac1, and a subsequent drug repositioning analysis. With the final abstract presented at the Symposium, Dr. Raychaudhuri discussed progress targeting voltage-gated potassium channels and calcium channels for the treatment of psoriatic disease.

Breakout Sessions

Many recent endeavors have sought to identify gaps and priorities in psoriatic disease research. With breakout sessions at the 2017 Research Symposium, NPF sought insight into how it can design programs to best support six broad groups whose success is critical to an effective workforce working to advance its mission: (A) early career scientists, (B) mid-career scientists, (C) established scientists, (D) basic scientists, (E) translational scientists, and (F) clinical scientists. Attendees were assigned to two groups (A–C and D–F) and participated in two moderated discussions guided by primer questions focused on research priorities and needs for career and project support. PDRAs were also given group assignments and provided the patient voice in each discussion. More than two-hundred ideas were assembled in the six breakouts, a summary of which were shared with the entire audience by moderators in the last session of the Symposium. Interesting trends emerged when comparing the discussions between different career stages and between different research types. For example, early career researchers prioritized networking and education opportunities while mid-career and established researchers prioritized funding and hiring resources. And basic scientists stressed the need to develop better mouse models to study psoriatic disease, while clinical scientists focused their discussion on personalized medicine. Breakout session ideas will be incorporated into many activities at NPF, in particular Professional Membership benefits, grants and fellowships programs, and patient-centered research.

Conclusion

The 2017 NPF Research Symposium provided a valuable venue for education, sharing of the latest in psoriatic disease research, fostering collaboration, and brining the patient perspective to the research enterprise. As NPF works toward its mission to find a cure for psoriatic disease and improve the lives of those affected, hosting this kind of venue for researchers, whether they be academic or industry-based or funded by NPF or not, is a critical activity. Researchers leave in a better position to succeed and NPF leaves in a better position to design future programs.

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