

What a Difference DF Funding Can Make



Dr. Harris began his research with a 1-year DF Research Grant (2008) for *In Vivo Imaging of Cellular Events in a Mouse Model of Auto-immune Vitiligo*, and completed this project with a 1-year DF Dermatologist Investigator Research Fellowship (2009). A 3-year DF Research Career Development Award (2010–13) supported *Defining the Autoimmune Response in Vitiligo*. In 2014, he received a 3-year DF Stiefel Scholar Award to investigate *Skin-resident Memory T Cells in Vitiligo* (made possible by the generous gift of Charles and Daneen Stiefel).

John E. Harris, MD, PhD, is on the verge of radically transforming care for patients suffering with vitiligo, a common and disfiguring autoimmune disease with, as yet, no FDA-approved medical treatments. He has progressed rapidly in advancing knowledge of the autoimmune pathways that cause this disease and now is closing in on a treatment goal that has remained unmet—skin that remains normal after treatment is stopped. Dr. Harris has developed a highly targeted treatment that inhibits a novel pathway. He and his team have confirmed its capability in the mouse model he developed, and now they are preparing to move to clinical trials.

Current therapies—whether off-label treatments or more helpful targeted drugs (experimental or repurposed) in clinical trials—suffer from the same deeply frustrating drawback. The disfiguring depigmented lesions return just as soon as treatment stops. Dr. Harris eventually realized that lesional skin must contain some kind of autoimmune memory that immediately reactivates the melanocyte-destructive events when treatment is discontinued. He found the source (resident memory T cells [T_{RM}]), learned that the cytokine IL-15 is critical to maintaining them, and successfully pursued a way to inhibit IL-15 locally and eliminate them. This IL-15 inhibitor produces what seems like a miracle in the vitiligo mouse. Brief treatment not only consistently reverses this disease and restores

pigment to affected skin—but the effects last long after treatment has been discontinued. Now human trials are on the horizon.

“This treatment currently holds the most promise for durable therapy, and would not have been possible without the DF,” Dr. Harris emphasizes. “The research bringing it to this point was funded primarily by my DF Stiefel Scholar Award, supplemented by private philanthropy,” he adds. “I did not have NIH funding for this study.”

Dr. Harris is grateful for the investment that the DF made in him at critical junctures, beginning with his first project. Dr. Harris developed an animal model—the vitiligo mouse—to enable meaningful research in his lab and others to progress. His Stiefel Scholar Award—supporting the study that he anticipates will have a profound impact on treatment—“came at a particularly important time, allowing me to continue moving forward despite limited and uncertain funding from the NIH.” Now he anticipates a safe and short-term treatment with long-lasting effects—an exciting new option for vitiligo patients.

“Providing funding for deserving research is key to continued significant progress in the ability of dermatologists to care for their patients,” Dr. Harris underlines. “And the Dermatology Foundation is one of the most important groups doing this. I’m a big believer in the Dermatology Foundation!”