Lupus Research Alliance 2023 Distinguished Innovator Award Granted to Yale School of Medicine's Dr. Akiko Iwasaki

Research Will Explore How Ancient Viral Remnants in Our DNA Trigger Lupus

LRA Grants Distinguished Innovator Award to Dr. Akiko Iwasaki

NEW YORK, NEW YORK, UNITED STATES, January 30, 2024 /EINPresswire.com/ -- The Lupus Research Alliance (LRA) is pleased to grant the 2023 Dr. William E. Paul Distinguished Innovator Award (DIA) to Akiko Iwasaki, Ph.D., Sterling Professor of Immunobiology at the Yale School of Medicine. Dr. Iwasaki will investigate a possible cause of lupus – remnants of ancient viruses that have been integrated into our genome called endogenous retroviruses. The DIA provides investigators up to $1 million over four years to explore bold, paradigm-shifting ideas that could lead to groundbreaking discoveries in lupus research.

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>
> *Akiko Iwasaki, PhD*

“We are thrilled to award the 2023 DIA to Dr. Iwasaki, whose innovative work has the potential to advance our understanding of a previously undescribed pathway to lupus with future therapeutic potential,” said LRA Chief Scientific Officer Teodora Staeva, Ph.D.

“I am honored and delighted to receive the LRA Distinguished Innovator Award! With this award, we will probe the link between the immune system reacting to viruses within us as a possible trigger of lupus disease,” commented Dr. Iwasaki. “Lupus is an autoimmune disease, which means that our immune system attacks our own cells by mistake. Exactly what is being targeted by the immune system still remains a mystery. We hypothesize that immune reaction to viruses that live inside of our cells may be the culprit. We are developing the right tools to be able to probe this link, thanks to the support of LRA.”

Exploring Endogenous Retroviruses as a Driver of Autoimmunity in Systemic Lupus Erythematosus

Dr. Iwasaki's pioneering research aims to uncover how ancient viral remnants in our DNA, called endogenous retroviruses (ERVs), trigger autoimmune responses in Systemic Lupus Erythematosus (SLE). ERVs, resembling historical records of past viral infections, make up approximately 8% of the human genome, a genetic legacy from viruses that infected our ancestors millions of years ago. Molecules that cause inflammation called type I interferons are normally produced in response to viral infection but are increased in many people with SLE. What causes this increase, however, is not well understood. Recent findings from the Iwasaki lab suggest that these ERVs become active and drive an increase in type I interferons. In this groundbreaking study, Dr. Iwasaki will evaluate the immune response to increased ERV levels as a trigger of autoimmunity in SLE.

In lupus, T cells, the "guards" of the immune system, can become autoreactive, mistakenly identifying the body's own cells as foreign. These autoreactive T cells can also activate B cells to produce autoantibodies that recognize the body's own organs and tissues rather than harmful invaders like viruses and bacteria. Dr. Iwasaki will measure ERV levels and identify and characterize autoreactive T cells targeting ERVs in samples from individuals with cutaneous lupus, which affects the skin. To better understand the immune system's response to ERV activation, Dr. Iwasaki will use a mouse model to determine how increased ERV activation in the skin drives inflammation and autoimmunity. By establishing a connection between endogenous retroviruses, inflammation, and autoreactive T cells in lupus, Dr. Iwasaki's research has the potential to lead the way to new, targeted therapies for this complex condition.

About Lupus

Lupus is a chronic, complex autoimmune disease that affects millions of people worldwide. More than 90 percent of people with lupus are women, often striking during the childbearing years of 15-45. Blacks/African Americans, Hispanics, Asians, and Native Americans are at two to three times greater risk than Caucasians for developing lupus. In lupus, the immune system, meant to defend against infections, produces antibodies that mistakenly recognize the body's own cells as foreign, prompting other immune cells to attack and potentially damage organs such as the kidneys, brain, heart, lungs, blood, skin, and joints.

About Lupus Research Alliance

The Lupus Research Alliance is the largest non-governmental, non-profit funder of lupus research worldwide. The organization aims to transform treatment by funding the most innovative lupus research, fostering diverse scientific talent, and driving discovery toward better diagnostics, improved treatments and ultimately, a cure for lupus. Because the Lupus Research Alliance's Board of Directors funds all administrative and fundraising costs, 100% of all donations goes to support lupus research programs.

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