

# LUPUS RESEARCH ALLIANCE

FORMERLY



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## Novel Research Investigators Post Key Discoveries

How to curb the immune system to avoid triggering lupus and how to treat it are important outcomes of two innovative studies supported by the former Lupus Research Institute (LRI)\* and now published in leading scientific journals.

### Controlling the Switch to Regulate Autoimmunity

A family of molecules (microRNA's) that act as "dimmer switches" to carefully regulate the immune system was identified by a team led by Changchun Xiao, PhD at The Scripps Research Institute (TSRI). With his LRI Novel Research Grant, Dr. Xiao had set out to analyze genes that help orchestrate the normal immune system's ability to avoid attacking the body's own tissues while still fighting off foreign invaders.

He found that under-production of microRNAs lower the ability to fight infection while over-production puts the immune system in overdrive to trigger autoimmunity. These significant discoveries are published in *The Journal of Experimental Medicine*.

Additional data from the study published in the journal *Nature Communications* found that two members of the microRNA family might play a leading role in causing the immune system to attack and thus could provide a target for developing therapies to blunt their performance.

Next, Dr. Xiao and his colleagues plan to collaborate with a group of colleagues at The Scripps Research Institute to **test possible miRNA inhibitors** that could both control antibody production and treat autoimmune



disease.



## 'Junk Mail' in our Genes Could Trigger Lupus

Parts of our genetic make-up usually viewed as 'junk mail' could be involved in triggering lupus, according to a study led by Mary K. Crow, MD of Hospital for Special Surgery. Dr. Crow has been working on the concept for the past 15 years – with original jump-start support from the Lupus Research Institute.

“This work started with my first Novel Research Grant from the LRI in 2001, which goes to show that creative, unorthodox ideas can pan out – even if it sometimes takes years,” she said.

What causes the immune system to mistakenly attack the body's own tissues in lupus has long puzzled researchers, and previous research had found little evidence that external viruses are involved. Published in the journal *Arthritis & Rheumatology*, Dr. Crow reported discovering that genetic 'junk mail' – non-functional parts of our genetic code which came from viruses and long ago became entwined with our own genetic code – can provoke our immune system to respond as if under attack by a virus.

By generating new understanding about what causes lupus, the work of Drs. Xiao and Crow informs the field and accelerates the search for new treatments.

Read press releases from The Scripps Research Institute and Hospital for Special Surgery.

- [TSRI Researchers Find 'Lead Actors' in Immune Cell Development](#) – Dr. Xiao
- [Found: A Potential New Way to Sway the Immune System](#) – Dr. Xiao
- [Researchers Discover Potential Genetic Trigger of Autoimmune Disease](#) – Dr. Crow

\* The LRI has now merged with the Alliance for Lupus Research and the S.L.E. Lupus Foundation to form the [Lupus Research Alliance](#).

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