RESEARCH!AMERICA
DISCOVERY. INNOVATION. HEALTH.

If you think research is expensive, try disease.

INVESTMENT IN RESEARCH SAVES LIVES AND MONEY

Lupus

Lupus is a chronic, inflammatory, autoimmune disease marked by symptoms that can include painful joints, exhaustion, skin rashes, sun sensitivity and organ failure.[1] Though drug discovery has proven difficult, new insights about how the immune system functions are allowing researchers to discover, design, and evaluate new treatments.

TODAY

An estimated

1.5 million

Americans—mostly women—have some form of lupus.[1]

Women of color are 2 to 3 times more likely

to develop lupus than white women, and experience earlier onset and more severe symptoms.[1]

Between

10-15 percent

of people with lupus will die prematurely.[1]

COST

Nearly half:

that's the fraction of employed lupus patients who lost their jobs over a 13 year period.[2]

$50,000:

That's the sum of the direct and indirect costs people with lupus may face annually.[4, 5, 6]

Research Delivers Solutions

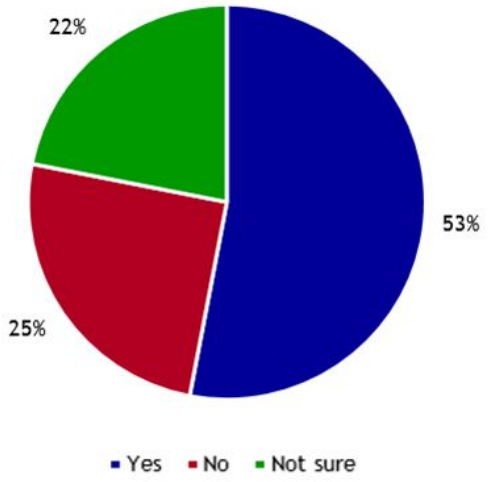
Approved by the FDA in 2011, Belimumab is the first medication **specifically designed to treat lupus**. It's been shown to significantly **limit the organ damage** that frequently accompanies lupus.[7]

As understanding of the immune system grows, researchers are looking to **other autoimmune conditions** for therapies that might work for patients with lupus. Clinical trials of the asthma medication **omalizumab** found that the drug significantly **reduced lupus symptoms** and **autoimmune activity**.[8]

Researchers are also learning to design new treatments for lupus that directly **intervene in overactive immune systems**, reducing disease symptoms and necessary steroid dosage levels.[9]

Half of Americans Willing to Pay Additional Taxes to Support Medical Research

Would you be willing to pay $1 per week more in taxes if you were certain that all of the money would be spent on additional medical research?



Source: A Research!America poll of U.S. adults conducted in partnership with Zogby Analytics in January 2019

1. Lupus Foundation of America
2. Drenkard et al. "Burden of Systemic Lupus Erythematosus on Employment." 2014.
3. Garris et al. "Burden of Lupus in a Medicare Population." 2015.
4. Barber et al. "Socioeconomic Consequences of Lupus." 2017.
5. Carter et al. "The Global burden of SLE." 2016.
6. Meacock, et al. "The Humanistic and Economic Burden of Lupus." 2013.
7. Urowitz et al. "Organ Damage in Patients Treated with Belimumab." 2018

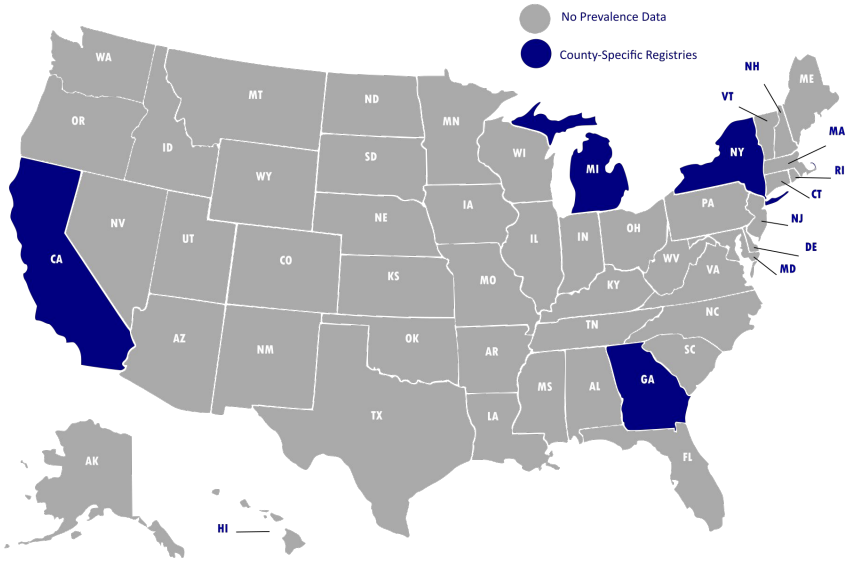
Lupus

Then. Now. Imagine.

THEN
In the late 1940s, 40% of lupus patients died within three years of symptom onset.[15] Lupus treatments from the late 20th century targeted the entire immune system, rather than the specific elements involved in lupus, and came with significant, debilitating side effects.[14]

NOW
The five-year and ten-year survival rates for lupus patients now exceed 90%.[15] Scientific advances continue to help patients with lupus live longer, healthier lives, with fewer complications and lower rates of organ failure. Research into lupus' genetic, bacterial, and environmental components promises to uncover new treatment pathways.

IMAGINE
A cure.



The CDC funded five temporary population-based registries in four states, and certain regions under the auspices of the Indian Health Service. This data helped uncover the disproportionate lupus burden faced by women of color.

SOURCE: "CDC-Funded Lupus Activities - Lupus Research Studies." Centers for Disease Control and Prevention. 2018

Spotlight on Research

Responsible for producing antibodies, **B-cells** are a crucial component of the immune system. As such, understanding how they work, how they are regulated, and why they misfire could be crucial to understanding the progression of **autoimmune diseases**, like lupus. A recent study investigated just that: researchers made B-cells that lacked **a receptor molecule known as GARP**, and found that mice with these B-cells developed systemic autoimmune diseases, and worse symptoms of lupus-like disease. With these findings, the authors of this study hypothesize that **targeting GARP could be a promising therapeutic strategy for autoimmune diseases.** [10]

Whereas traditional genetic studies examine variation in the content of genes, epigenetic studies examine variation in the rates of **gene expression**, or how frequently the particular protein a gene encodes is actually produced. As our understanding of **epigenetics** and the **microbiome** grows, researchers are identifying changes in gene expression that are linked to lupus, investigating abnormalities in the gut microbiome of lupus patients, and finding that **bacterial infections may activate genes that lead to lupus**, or other autoimmune diseases. [11, 12, 13]

8. Hasni et al. "Safety and Tolerability of Omalizumab." 2018.
9. "Neovacs Phase IIb study." Neovacs. 2018.
10. Wallace et al. "B Lymphocytes Immune Tolerance via GARP complex." 2018.
11. Long et al. "The Critical Role of Epigenetics in Lupus." 2016
12. Rosser et al. "Significance of the Microbiotia in Systemic Autoimmunity." 2016.
13. Nielsen et al. "Infections as Risk Factor for Autoimmune Diseases." 2016.
14. "NIH Fact Sheets – Lupus." National Institutes of Health. 2018.
15. Singh et al. "SLE Mortality Remains Disproportionately High." 2018.

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