

"We believe that innovation and risk-taking lie at the heart of discovery, and we support that."

-Dr. Joseph Craft, Chairman, Scientific Advisory Board

# **Our Story**

WHAT DO YOU GET WHEN you apply a venture-capitalist approach to discovering and developing new medical treatments?

#### Results.

That's our mission at the Alliance for Lupus Research (ALR): We raise money to support research that improves the lives of people with lupus—not in 20 to 30 years, but in the near future.

#### Research with results

In February 1999, ALR founder Robert Wood Johnson IV convened a group of business leaders and lupus experts. Researchers had made little progress in the last three decades toward the treatment, cure and prevention of this mysterious disease, and he wanted to change this bleak outlook.

expenses. In exchange, all shareholders expect a significant return in the form of scientific research that can soon improve the lives of people with lupus.

Our founders created a funding and research model that bridges the gap between the rapid, results-oriented focus of private industry and the steady, methodical approach of basic scientific research. These pioneers started by recruiting an elite Scientific Advisory Board of specialists across the spectrum of lupus-related medical disciplines. This elite group of scientific volunteers built the ALR's research infrastructure in a twofold process: by developing a lupus research plan and defining a rigorous peerreview process. These steps ensured the organization would spend money effectively.

In awarding grants, ALR established research benchmarks and deadlines, challenging recipi100% of contributions 30 to support lupus research

"ALR is different...there are not many agencies that are focusing aggressively on bringing treatments from the laboratory to the bedside in a short time."

-Robert Wood Johnson IV, Chairman, Board of Directors

The participants agreed the time was ripe for such an ambitious undertaking. Recent scientific breakthroughs created unprecedented opportunities for finding novel treatments—and ultimately a cure—for lupus.

Challenged to create a new, aggressive, multidisciplinary approach to funding and conducting lupus research, these leaders studied existing research channels. What wasn't being done? How could they maximize their impact?

Historically underfunded due to lack of national attention, the disease needed a focused champion—one that would speak on behalf of the hundreds of thousands suffering from lupus, one that would recruit the best and brightest scientific talent to this cause, one that would focus exclusively on developing near-term therapies for people with lupus.

Thus, the Alliance for Lupus Research was born.

#### Seeding a cure for lupus

Since inception, ALR has benefited from the financial support of its Board of Directors, angel investors, who cover the cost of all operational

ents to produce results quickly. ALR leaders then renewed the grants that showed the greatest promise.

#### The power of leverage

Our entrepreneurial efficiency has enabled us to build a solid support base in a short period. With 100% of contributions supporting targeted research, ALR has raised more than \$40 million¹ since its founding.

In addition, the aggressive, focused research model has enabled several ALR-funded projects to secure millions more from government and private industry sources. ALR has helped bring new therapies to clinical trials and identified potential biomarkers to allow more accurate diagnosis of this debilitating disease.

Turn the page to learn more about what we've done so far.

# Investing in a Cure

TO MAXIMIZE THE IMPACT of ALR funds, the Scientific Advisory Board (SAB) developed the Target Identification in Lupus (TIL) mechanism, which focuses on several critical areas of research. All projects funded under the TIL program support realizable goals for speedy translation into new patient therapies. In fact, the ALR requires researchers to reach specific, measurable benchmarks within an aggressive two-year time frame.

### Identifying promise through peer review

Investigators apply for TIL funding through a competitive peer-review process patterned after the model used by the National Institutes of Health (NIH), the federal focal point for medical research in the United States. When scientists submit research proposals to the ALR, scientific panels with relevant expertise evaluate the scientific and technical merit of each proposal and rank them according to rigorous criteria. The evaluation standards include originality, innovativeness, feasibility and relevance to the ALR mission of preventing, treating and curing lupus.

After this initial stage, the SAB conducts a second level of review and provides funding recommendations to the Board of Directors, who serve as a lay review board. This multilevel review system ensures that the ALR supports only the best projects that fulfill the organization's mission.

The organization leverages research projects by encouraging collaboration. Each year, ALR hosts a scientific meeting, where investigators meet and share their data to build upon one another's efforts. This interaction allows ALR researchers to identify synergies that advance their work even faster.

Of course, the ultimate goal is to translate basic research into practical treatments for people with lupus, but bringing new therapies from the bench to the bedside takes millions and millions of dollars. The organization fills the niche between funding agencies like the NIH and pharmaceutical companies, targeting research that shows the greatest promise of producing novel treatments in the shortest amount of time. ALR grants allow researchers to develop their ideas and attract larger investors.

This focus on high-risk, high-reward science has yielded amazing results.

Already, several studies funded by ALR have shown exciting promise, attracting significant investments from both the pharmaceutical industry and from government agencies. In each case, our Scientific Advisory Board recognized a novel idea that could improve the lives of people with lupus in the near future. Our seed money allowed investigators to refine those ideas and qualify for additional funding to further accelerate the research process—with the ultimate aim of developing treatments to improve the lives of people with lupus.

# Lupus clinical trials launched with cancer drug

In 2000, Dr. Robert A. Eisenberg, University of Pennsylvania, and Dr. R. John Looney, University of Rochester, requested ALR funding to study rituximab as a potential therapy for treating lupus. Commonly used to treat certain cancers, like lymphoma, rituximab is a genetically engineered antibody that targets and eliminates B cells. These white blood cells play a key role in lupus.

First, Drs. Eisenberg and Looney found a way to deplete B cells in mice and demonstrated that the mouse model mimicked the effects of rituximab in humans. The scientists then proposed to develop a human trial to study the therapeutic benefits of rituximab for people with lupus with kidney involvement.

Based in part on preliminary findings from the TIL grant, a leading medical biotechnology company agreed to take over the clinical trial as a controlled study, where one population receives the therapy and another does not. In addition, the company initiated a parallel trial in lupus without serious kidney involvement. In conjunction with these trials, Drs. Eisenberg and Looney will study the basic disease mechanisms in SLE, focusing on the role of B cells and whether depleting these cells can "reset" the immune systems of people with lupus. Dr. E. Luning Prak at Penn and Dr. Jennifer Anolik at Rochester are collaborating in this work.

These studies will help determine how best to use rituximab, what other therapies that target B cells might be effective, and how these approaches can yield the greatest benefits for those with lupus.

"ALR scientific meetings bring a diverse group of investigators into the same room. It's fascinating and exciting to see the interaction of those individuals with their different expertise, and different viewpoints, and to see how each one of those components can interact to bring projects further forward." -Dr. Andrew Chan, Scientific Advisory Board

## SCIENTIFIC ADVISORY BOARD

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## Blocking interferon-alpha for lupus relief

Dr. Charles A. Nicolette and his team at Argos Therapeutics in Raleigh-Durham, NC, have contracted with a global pharmaceutical company, Novo Nordisk in Copenhagen, to bring a new lupus treatment to clinical trial. The project resulted from ALR-funded research by Dr. Jacques Banchereau, Baylor Institute for Immunology Research, Dallas.

Earlier research by Dr. Banchereau supported the novel idea that neutralizing interferon-alpha, a blood protein implicated in immune system abnormalities associated with lupus, may effectively treat the disease. In 2005, ALR approved a TIL grant to search for antibodies that could neutralize a broad spectrum of interferon-alpha. Through this grant, Dr. Banchereau identified several candidates that showed therapeutic promise.

Dr. Banchereau then partnered with long-time associate Dr. Nicolette, who had extensive experience in product development. With a second TIL grant, the two scientists chose the best antibody from Dr. Banchereau's initial grant and prepared it for human use. They also developed a plan to bring the humanized antibody to clinical trial. ALR funding allowed the team to transform Dr. Banchereau's scientific research into a promising clinical therapy that attracted pharmaceutical support.

The proposed treatment holds the potential to provide significant relief to people with lupus, with much milder side effects than current therapies offer. No new lupus treatments have entered the market for decades, making this and the above-mentioned trial an important step in the right direction.

# NIH funds \$5.7 million lupus research project on preventing pregnancy loss

In 2004, the National Institutes of Health (NIH) awarded a \$5.7 million grant to Dr. Jane Salmon, Hospital for Special Surgery in New York, to study recurrent pregnancy loss among women with lupus. Based on ALR grants in 2000 and 2002, Dr. Salmon's accelerated development of a novel treatment for pregnancy loss in lupus resulted in funding by the NIH and National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) for a five-year study. This project typifies the results-driven research and investment leverage that we seek.

Dr. Salmon and her colleagues have since found that a substance called tissue factor may play a key role in pregnancy loss among certain people with lupus. Data from her current ALR grant, begun in 2003, shows that tissue factor starts the

coagulation process. This clotting substance is the link between inflammation and thrombosis, or blood clots, in miscarriages induced by antiphospholipid antibodies.

The findings potentially define a new target to prevent pregnancy complications in lupus. This study further refines Dr. Salmon's work that identified inflammation as a major trigger of miscarriage, followed by studies showing that heparin helps prevent pregnancy loss not as an anticoagulant, but as an anti-inflammatory agent.

With each new discovery, Dr. Salmon and her colleagues grow closer toward preventing miscarriages in women with lupus and antiphospholipid syndrome (APS).

## DoD awards \$2.5 million in grants for lupus research

Following ALR's success in securing Department of Defense (DoD) funding for lupus research, the DoD has awarded two grants to lupus investigators.

#### Complement-based biomarkers

Dr. George C. Tsokos, Uniformed Services University in Bethesda, MD, is the principal investigator of a four-year \$1.5 million collaborative project focused on T cell biomarkers. The study will use the Pittsburgh Lupus registry of more than 1,000 people with lupus.

ALR grants supported recent studies of this cohort, which led to development of a panel of promising complement-based biomarkers. Specifically, the researchers developed tests that measure the levels of certain proteins deposited on the surface of red blood cells. The proteins belong to the complement system—blood proteins that contribute to inflammation and tissue damage in lupus.

DoD support will now facilitate investigation of distinct but related biomarkers developed in the Tsokos laboratory. Investigators expect this work will yield an arsenal of lupus biomarkers and new clues to pathogenesis.

#### Gene expression signatures

Dr. Timothy W. Behrens, University of Minnesota and Genentech (July 2006), received a four-year, \$1 million research project validating another approach to biomarkers. Using a biorepository of more than 2,000 blood samples from people with lupus, he will validate gene expression signatures as biomarkers for disease activity and severity in SLE.

The study is directly related to Dr. Behrens's work funded under an earlier ALR grant on identifying an interferon gene expression signature in SLE.

### Raising the research bar

By supporting such targeted research, ALR has given long-awaited hope to people living with lupus. We are proud to look back at what we've accomplished in only six short years.

But it isn't enough—not for us, not for our researchers, not for our board of directors, and certainly not for those who continue to live with this debilitating disease.

That's why we continuously search for ways to speed up the research process even more. How can we use our resources to attract new scientific talent? How can we support that talent and maximize its effectiveness?

The ALR has launched two programs to further condense the time from novel concept to practical prevention and therapy.

#### **SLEGEN International Consortium**

In July 2004, the Alliance for Lupus Research sponsored a summit of lupus geneticists to develop a strategy for identifying the genetic link associated with systemic lupus erythematosus (SLE). Participants agreed to unite in the first-ever SLE Genetics (SLEGEN) International Consortium. After an independent scientific committee reviewed the group's research proposal, ALR committed \$2 million to a special initiative, expanding that commitment in 2006 to \$2.5 million.

Historically, two obstacles have hindered identification of lupus susceptibility genes: insufficient patient samples and inadequate technology. The SLEGEN initiative solved the first problem by pooling patient samples from the consortium. In addition, new technologies emerged in 2005 that enabled investigators to rapidly analyze genetic material (DNA sequences).

These technologies allow researchers to identify differences in the frequency of thousands of genetic variants known as SNPs (single nucleotide polymorphisms or snips) between the genomes of people with lupus and healthy individuals (controls). The SLEGEN project will query over 300,000 SNPs in approximately 800 SLE cases and more than 300 controls, creating a massive dataset that will offer an unprecedented view of the genetic architecture of human SLE.

By comparing DNA sequences from affected individuals and controls, scientists can target the areas of individual chromosomes where lupus susceptibility genes are likely to be found. Identifying the genes linked to lupus will enhance our understanding of the disease process and lead to more effective diagnosis tests and treatments.

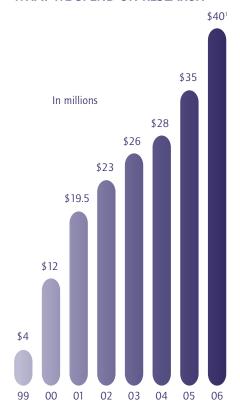
### **Pilot Grant Program**

When we created our 2005 Scientific Strategic Plan, we asked ourselves how we could attract new scientific talent to lupus research and further accelerate discovery.

We came up with the Pilot Grant Program. A one-year program with awards of up to \$75,000, this initiative allows investigators to pursue high-risk but promising approaches and techniques that can lead to near-term tests and treatments. The streamlined application process minimizes the grant-writing time investment to entice scientists who might not otherwise lend their talents to lupus research.

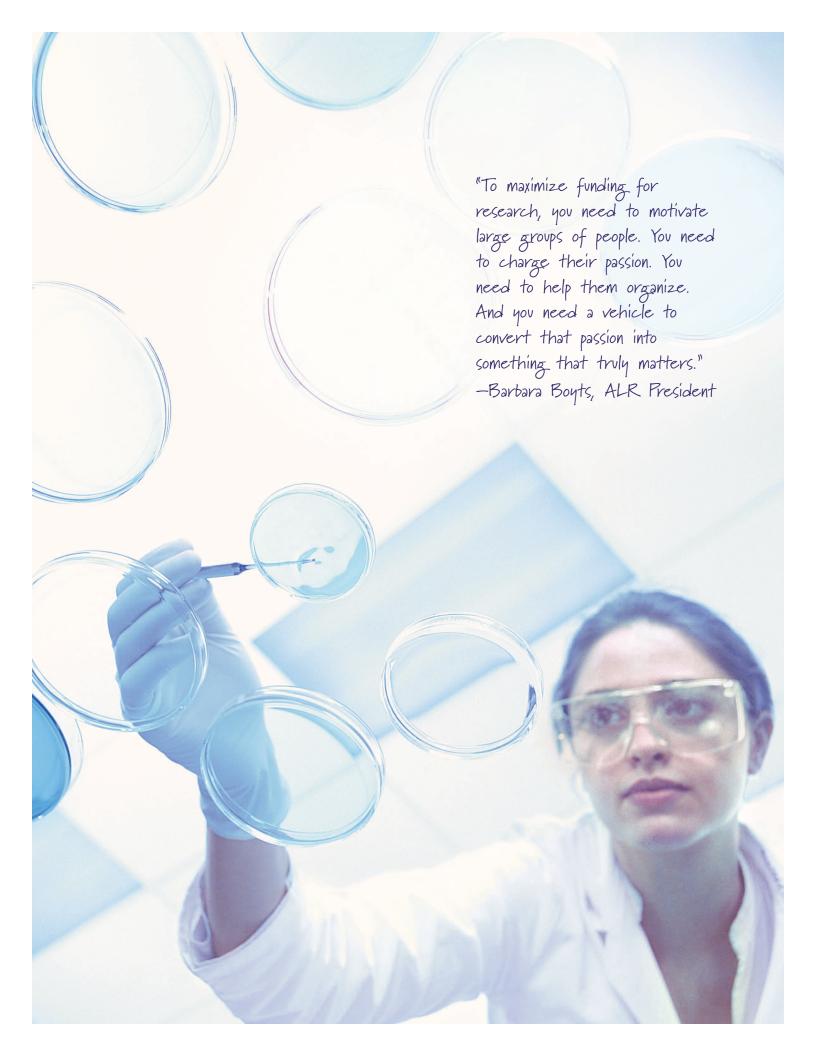
As with the TIL program, our goal is maximum leverage. ALR seeks to aid investigators in developing necessary pilot data to apply for larger awards from NIH, ALR and other funding agencies.

#### WHAT WE SPEND ON RESEARCH



"Had we not received the ALR grant to begin the development phase, the project would have stopped. The ALR money kept us going so that we now have a promising therapy that's very close to reaching the clinic."

-Dr. Charles Nicolette, Argos Therapeutics



# The Voice of Lupus

OUR PRIMARY GOAL IS TO raise money to support our mission of preventing, treating and curing lupus. In addition to developing contributions from organizations and individuals, the Alliance for Lupus Research strives to increase federal funding from the National Institutes of Health and other government agencies. We pursue government funding by educating members of Congress and the administration about the importance of lupus research.

### Gaining government support

Since starting our public policy program in 2003, ALR has already made great strides, attracting bipartisan support from such policymakers as Sens. Charles Schumer (D-NY) and Arlen Specter (R-PA). In fiscal years 2004 and 2005, we succeeded in placing language in the Committee Report accompanying the Labor, HHS (Health and Human Services) Appropriations bill directing NIH to fully fund the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), the NIH institute leading the federal lupus research effort.

In 2004, we achieved an important public policy milestone when the Department of Defense (DoD) Peer Reviewed Medical Research Program agreed to include lupus in the list of diseases funded for fiscal year 2005. It was the first time that the DoD included lupus as one of the 23 scientific topic areas covered by this competitive grant program, which has a budget of \$50 million. Through our continued efforts, the DoD recently agreed to list lupus once again under this program in the House Military Quality of Life Appropriations bill for fiscal year 2007. We extend special thanks to Representative James Walsh (R-NY), Chairman of the House Military Quality of Life Appropriations Subcommittee, for championing the addition of lupus to this list.

### First-ever Advocacy Day

In 2006, we expanded our annual volunteer meeting in Washington, D.C., to include ALR's first advocacy day. Nearly 100 volunteers from across the country gathered on May 1 for two days of fundraising and advocacy training. Then, on May 3, these men and women visited approximately 70 members of Congress, telling the ALR story and requesting support for establishing a dedicated lupus research program at the Department of Defense.



Specifically, our volunteers asked their representatives to encourage key appropriations committee members to earmark \$5 million for lupus research in the DoD Appropriations bill for fiscal year 2007. If approved, this funding would allow the DoD to build the infrastructure required to support research aimed at the prevention, treatment and cure of lupus. Senator Charles Schumer (D-NY) is championing this project in the Senate on behalf of ALR.

# **Funding a Brighter Future**



## ALR LEADERSHIP CIRCLE

In 2004, we created the Leadership Circle to acknowledge distinguished philanthropy to the Alliance for Lupus Research. Donors who pledge or commit more than \$1,000 receive a oneyear membership. Leadership Circle members receive exclusive invitations to ALR receptions and scientific summits, where they meet with ALR-funded investigators and other scientific leaders in lupus research. Here, they learn firsthand about lupus research progress supported by their contributions.



"The ALR has become an important part of my life. Supporting their single-minded dedication to finding a cure for lupus is truly empowering." -volunteer Tracey Boston

WITHIN A FEW YEARS of its founding, the Alliance for Lupus Research quickly distinguished itself by giving more money to lupus research than any non-governmental organization in the world. One of the factors driving this success is our efficient stewardship. With 100% of all donations supporting targeted lupus research, people who hear our story often join our cause. Our grassroots fundraising program has ignited the passion of supporters from coast to coast.

Each year, the ALR receives the majority of its funding from tens of thousands of individual donors. Our annual campaign continues to grow at all levels. Last year, we received one gift of \$2 million and another gift of \$4 million. Many other donations are smaller but just as large in spirit. The ALR appreciates every contribution, and we work diligently to spend each research dollar wisely.

## Putting lupus on the map, one city at a time

In 2002 we started our signature fundraising program, *Walk with Us to Cure Lupus*. Working with the ALR, a small handful of intrepid volunteers in the Washington D.C. area set off to launch a walkathon. That year, our first walk took place on the National Mall, raising \$133,000.

On October 28, 2006, we hosted our fifth annual walk in Washington, D.C., and our walkathon program has expanded to 19 cities across the country, raising more than \$7 million—with 100% of all proceeds supporting lupus research.

We've come a long way since that first walk, and we still have a long way to go. To learn how

you can get involved with our *Walk with Us to Cure Lupus* program—either by taking part in an existing walk or by bringing a walk to your community—visit us online at walk.lupusresearch.org or call us at (866) WALK-ALR, or (866) 925-5257.

Together, we'll continue putting lupus on the map, one city at a time.

## Supporting research through special events

We hosted our first gala honoree dinner in 2002, recognizing then-Chief Operating Officer of AOL-Time Warner Bob Pittman. Since then, ALR has hosted galas honoring James Dolan, CEO of Cablevision, Judy McGrath, Chairman and CEO of MTV Networks, and Sarah Harrison, Vice President and Executive Health Consultant of AstraZeneca. In addition to these ALR-sponsored events, we have benefited from the generosity of many organizations and individuals. The New York Jets have made ALR the biennial recipient of funds from their season kickoff luncheon, raising a total of over \$3 million.

Each year, a growing number of individuals also host fundraising events to benefit our lupus research programs. From art sales and celebrity auctions to fashion shows and golf scrambles, third-party events promote lupus awareness and raise thousands of dollars.

With 100% of all donations going toward research, every gift—large or small—makes a difference in the life of someone living with lupus. If you would like to sponsor a fundraiser or event to benefit the ALR, please call (800) 867-1743 or email info@lupusresearch.org.

# How You Can Help

"If we had enough smart people looking at lupus, it would be cured already."

-Robert W. Pittman, Board of Directors

IN ONLY SIX YEARS, ALR's aggressive, targeted approach to lupus research has already made great progress toward understanding and ultimately curing this debilitating disease. For the first time in four decades, people with lupus now have hope for new therapies that will improve their lives. Federal agencies are now funding research that can lead to earlier, more accurate diagnosis—and perhaps prevention—of lupus. And many of the top scientists in the world are decoding the genes behind this disease for clues to a cure.

Each new discovery brings us closer to a breakthrough. It is just a matter of time—and support.

The ALR needs the continuing support of organizations and individuals to realize the clinical promise of the projects described in these pages. Only you can continue the momentum we've achieved toward conquering this disease.

To learn how you can support our mission, call us today at (800) 867-1743, or send your donation in the enclosed business reply envelope.

Together, we will find a cure.

The Alliance for Lupus Research is tax-exempt under 501(c)(3) of the Internal Revenue Code. Donations are tax-deductible to the extent allowed by law.

#### **BOARD OF DIRECTORS**

We extend our sincere gratitude and appreciation to our Board of Directors, who pay all our operating expenses. Their ongoing generosity allows us to commit 100% of all donations to support lupus research.

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<sup>&</sup>lt;sup>1</sup> Estimated cumulative support to research.



28 West 44th Street Suite 1217 New York NY 10036 212-218-2840 Toll Free 800-867-1743 www.lupusresearch.org