“MY WIFE HAS BEEN STRUGGLING WITH CHRONIC LYME FOR THE PAST TWO YEARS AND IS JUST STARTING TO FEEL BETTER. THANK YOU FOR YOUR EFFORTS TO BRING MORE AWARENESS TO THIS DISEASE AND FUND THE RESEARCH THAT IS SO DESPERATELY NEEDED.”

— Brandon N., Arizona

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A LETTER FROM OUR CEO & CHAIRMAN

DEAR FRIENDS:

GLOBAL LYME ALLIANCE (GLA) REMAINS DEDICATED TO CONQUERING LYME DISEASE THROUGH A THREE-TIERED APPROACH OF RESEARCH, EDUCATION AND AWARENESS. IN 2018 WE MADE GREAT STRIDES ON OUR CRUSADE TO FIND ANSWERS FOR THE HUNDREDS OF THOUSANDS OF PEOPLE SUFFERING FROM TICK-BORNE ILLNESSES. FROM IDENTIFYING NEW TREATMENT OPTIONS TO EDUCATING THE COMMUNITY AT LARGE, GLA CONTINUES TO BE A CATALYST FOR CHANGE.

In June we announced a significant milestone when GLA surpassed the $10 million mark in Lyme disease research grant funding to date. To mark this achievement, we issued the “Lyme Disease Research Report: Looking Back, Moving Forward,” the first such report published by any Lyme organization. In 2018 alone, moreover, we awarded close to $2 million in grants to 15 researchers at leading national academic and medical institutions.

Specific advances from our GLA-funded researchers include: substantive progress in the development of improved diagnostic tools and more effective treatment options using promising new approaches. They have tested promising new drug combinations which successfully attack “persister” cells which evade conventional antibiotics, as well as antibiotic-tolerant Lyme bacteria.

As our knowledge of the complex nature of the Lyme bacterium deepens, cases of Lyme and other tick-borne diseases continue to escalate at a rapid pace. This year alone there will be 427,000 new cases of Lyme disease, not counting co-infections.

We believe we are at a watershed moment in which research data and technology are converging in ways that will accelerate substantive change. To this end, we continue to foster new partnerships and collaborations, to bridge the gap between research discoveries and their translation into marketable products, a process ensuring that life-changing discoveries reach the public in a practical and useful form.

Concurrently, we are working to increase Lyme and tick-borne disease awareness across the nation and the globe. Without accurate diagnostics and proven treatment options, tick bite prevention is key. In 2018 GLA launched educational initiatives and awareness campaigns which targeted physicians, teachers, summer campers, and the general public. Our new Lyme Education Ambassador Program, for example, trained volunteers in communities across the country to raise public awareness and teach others how to prevent tick-borne illnesses.

In addition, in 2018 we diversified our Board of Directors with several high-profile individuals—global superstar and philanthropist Avril Lavigne, among them—as a means of strengthening outreach efforts and growing fundraising to meet the ever-increasing demand for research dollars looking back at 2018 we are encouraged by the progress we have made. Our insight, innovation, and impact would not have been possible without our team, our partners, and supporters like you. We are grateful to have you at our side as we continue our mission to conquer Lyme disease and make a difference in the lives of those suffering from Lyme and other tick-borne diseases, and in all who are at risk.

Looking back at 2018 we are encouraged by the progress we have made. Our insight, innovation, and impact would not have been possible without our team, our partners, and supporters like you. We are grateful to have you at our side as we continue our mission to conquer Lyme disease and make a difference in the lives of those suffering from Lyme and other tick-borne diseases, and in all who are at risk.

Scott Santarella
CEO
Global Lyme Alliance

Robert Kobre
Chairman of the Board
Global Lyme Alliance
2018: YEAR AT A GLANCE

FEB
Study funded by GLA at Johns Hopkins University shows evidence that post treatment Lyme disease treatment can sometimes reduce symptoms.

GLA launches campaign that links packets of ingredients high in essential oils to treatments for stationary and stationary diseases.

JUL
GLA announces it has surpassed the $70 million mark in its efforts to fight Lyme disease.

NOV
GLA announces first Lyme disease organization to be named an official charity partner of the 2018 TCS New York City Marathon.

AUG
GLA-funded investigator Eric Lauer, Ph.D., and?s

JUL
Ten remembars are appointed to GLA’s Advisory Board, including Dr. Bruce Chabner, M.D., National Cancer Institute; Dr. Anne Schuchat, M.D., CDC; and Dr. Mark Shenker, D.O.

MAY
GLA hosts 13th annual Lyme Disease Research Symposium for its Scientific Advisory Board and funders to share their research findings and forge collaborations.

GLA-partnered study by Johns Hopkins researchers found that more than 150 symptoms can occur in the disease.

JUN
GLA’s mission to raise awareness and funds for Lyme disease.

Professional Mixed Martial Arts, Ultimate Fighting Championship Lightweight Fighter—Jim Miller,

GLA-collaborated event with Ruben Ivan Martinez, singer-songwriter, activist and advocate for Lyme disease.

Skye Cowie, who was diagnosed with Lyme disease at the age of 12, shares her story at the event.

GLA participates in the AstraZeneca U.S.

GLA launches 9th annual Lyme Disease Research Symposium for its Scientific Advisory Board and funders to share their research findings and forge collaborations.

GLA-funded researchers Kim Lewis, Ph.D., and R. Mark Wooten, Ph.D. of Northeastern University, publish findings on the effectiveness of 10 different medications in treating the disease.

GLA-funded research at Columbia University’s Armin Alaedini, Ph.D. demonstrates that there is a “serious and growing threat” of tick-borne diseases throughout the nation.

GLA teams up with the Avril Lavigne Foundation for its 4th Annual NYC Gala with singer-songwriter Avril Lavigne.

GLA hosts 8th annual Lyme Disease Research Symposium for its Scientific Advisory Board and funders to share their research findings and forge collaborations.

GLA-funded research led by Columbia University’s Armin Alaedini, Ph.D. demonstrates that there is a “serious and growing threat” of tick-borne diseases throughout the nation.

GLA-funded research by Columbia University’s Armin Alaedini, Ph.D. demonstrates that there is a “serious and growing threat” of tick-borne diseases throughout the nation.

GLA partners with Sinai Health System Foundation to help advance research into Multi-Cell Activating Syndrome.

Launched “Lyme is Real” awareness and fundraising campaign.

GLA participates in the AstraZeneca U.S.

GLA partners with Sinai Health System Foundation to help advance research into Multi-Cell Activating Syndrome.

Launched “Lyme is Real” awareness and fundraising campaign.
GLA LEADERSHIP

“
I am honored to be part of this amazing team. GLA’s leadership and focus on research is crucial to drive real change in how Lyme disease is understood and to improve the lives of patients worldwide.

— Avril Lavigne

GLOBAL LYMEE ALLIANCE ADDED SIX NEW MEMBERS TO ITS BOARD OF DIRECTORS IN 2018, INCLUDING GLOBAL SUPERSTAR AND PHILANTHROPIST AVRIL LAVIGNE AND EQUESTRIAN ERIN WALKER, WIFE OF PGA CHAMPION JIMMY WALKER. ALL HAVE A PERSONAL DRIVE TO CONQUER LYME DISEASE AND EACH BRINGS A UNIQUE SKILLSET TO GLA’S HANDS-ON BOARD. THEY ALSO RAISE VITAL FUNDS, ATTEND AND SUPPORT GLA EVENTS, ACT AS AMBASSADORS TO INTRODUCE THE ORGANIZATION AND THE CAUSE TO INDIVIDUALS, COMPANIES AND INDUSTRIES, AND HELP GUIDE THE ORGANIZATION AS IT SEeks A CURE FOR LYME AND OTHER TICK-BORNE DISEASES.

Scott Santarella, CEO
Robert Kobre, Chairman of the Board

BOARD OF DIRECTORS

Charles Balducci, Vice Chair
Diane Blanchard, Vice Chair
Staci Grodin, Vice Chair
Debbie Siciliano, Vice Chair
Henry Dosch, Treasurer
Brett Kristoff
Lorrie Nadel
Ed O’Connell
Karen Peetz
Paul Ross
Ridgway Barker*
Chris Corrinet
Nancy Del Genio*
David Gerstner
Julia Knox-Comeau
Avril Lavigne*
Steve Lefkowitz*
Lew Leone
Janice Lipton
Janet Vaccaro, Secretary

Scott Santarella, CEO
Robert Kobre, Chairman of the Board

*New in 2018

GLOBAL LYMEE ALLIANCE – ANNUAL REPORT 2018

GLOBAL LYMEE ALLIANCE – ANNUAL REPORT 2018
The goal of GLA’s prestigious Scientific Advisory Board (SAB) is to provide strategic guidance for our research and scientific programs judged to have the best prospects of delivering measurable results and significant, marketable advances. To carry that out, the SAB is comprised of world-renowned researchers and clinical innovators in the field of Lyme and other tick-borne diseases.

Through a rigorous peer-review process, modeled after the National Institutes of Health, SAB members review the grant applications received to determine which projects best fulfill our mission to improve diagnostic testing, uncover more effective treatment protocols and ensure we are funding the most promising research. GLA is the only Lyme 501(c)(3) to follow these stringent guidelines with two in-house Ph.D.s at the helm.

The SAB comprises 16 members who generously give their time and expertise each year to ensure GLA remains in the vanguard of scientific research. The SAB meets in-person each year at GLA’s Lyme Disease Research Symposium.

GLA’s SAB is important because the organization invests heavily in research. Its peer review—with the science evaluated by other scientists—legitimizes the science. That’s important because only good science will help us crack the code of this disease.

— Mark Soloski, Ph.D.
1. **Connection between Lyme disease and depression**

GLA-funded investigator, Brian Fallon M.D., of Columbia University, published a study in the journal *Psychosomatics* linking Lyme disease and mental disorders, particularly depression and suicide. According to the study, depression has been reported in 8 to 45% of patients with post-treatment Lyme disease syndrome (PTLDS), but little was known about suicidal ideation in these patients. This seminal study highlighted the fact that one in five patients with PTLDS reported suicidal thoughts and the importance of screening for depression and suicidality to optimize patient care.

2. **Essential oils show promise as effective treatment for Lyme**

Ying Zhang, M.D., Ph.D. of Johns Hopkins Bloomberg School of Public Health, published findings on the effectiveness of certain essential oils (EOs) to kill *Borrelia burgdorferi*. The study identified 10 EOs that have strong activity against stationary phase *B. burgdorferi* at a low concentration, and it further found that of the 10, garlic, allspice, and thyme showed strong killing activity against persisters. Studies have now advanced to the stage of testing the therapeutic effects of essential oils in *B. burgdorferi*-infected animal models.

3. **“New” antibiotics identified**

GLA Grantee Kim Lewis, Ph.D. of Northeastern University identified Vancomycin as an effective antibiotic against *B. burgdorferi*. Dr. Lewis’ team found that Vancomycin proved more effective in killing the pathogen in vitro than Ceftriaxone. Examination of the action of antibiotics in severe combined immune deficient mice showed that Doxycycline, a standard of care for uncomplicated acute infection, did not clear the pathogen. By contrast, both Ceftriaxone and Vancomycin cleared the infection.

4. **Better understanding of Lyme persisters and chronic Lyme disease**

GLA-funded investigator John Aucott, M.D. and colleagues at Johns Hopkins University School of Medicine published results concluding that PTLDS is a real disorder with real symptoms that persist over long periods of time for some people. In a well-defined study of 61 patients who had been treated for Lyme disease, researchers found that some individuals can suffer from severe residual symptoms even after treatment, despite the absence of clinically detectable infection. Dr. Aucott and his group are continuing to study patients to search for biomarkers that were not examined in their initial study.

5. **Pathway opened for better Lyme disease diagnosis**

Inaccurate diagnostic testing is a major challenge for patients and physicians alike. Thanks to a report generated by a meeting of Lyme disease experts, including scientists from the FDA, NIH and the CDC, the pathways for developing superior diagnostic tests are clear. The meeting, underwritten by GLA, resulted in two articles published in a journal of the Infectious Diseases Society of America. The articles outlined the need for better tests and described newer approaches in direct detection that show promise.

6. **Improved identification of PTLDS sufferers**

An important series of GLA-funded studies by Armin Alaedini, Ph.D., at Columbia University, showed that Lyme patients with advanced disease can be distinguished from those with earlier disease stages. These studies were critical, because instead of simply comparing Lyme patients with healthy controls, as is typical in many studies of Lyme disease, the research compared Lyme patients in various stages of disease with each other, and with healthy people. This approach allowed a more precise characterization of patients.

7. **Record increase in cases of Lyme and vector-borne diseases in the U.S.**

The annual number of Lyme disease cases has reached ~427,000, up from ~329,000. In addition, the CDC announced that the combined case number of tick, flea, and mosquito-borne diseases have tripled in the last 13 years. The CDC also reports the fact that an ever-expanding diversity of vector-borne pathogens are being discovered through continued research efforts. The findings underscored the vital need for GLA to remain at the forefront of discovery and innovation, and a catalyst for change throughout the Lyme disease world.
Moreover, throughout 2018 GLA’s two on-staff Ph.D.s visited research labs and participated in important conferences, including the Gordon Research Conference on the Biology of Spirochetes in Ventura, California; the International Conference on Lyme Borreliosis and Tick-Borne Diseases in Atlanta, Georgia; the Midcoast Lyme Disease Support & Education Conference in Augusta, Maine; the Lyme Disease in the Era of Precision Medicine Conference and the Lyme Disease Association/Columbia Conference, both in New York; and the U.S. Department of Health and Human Service’s Lyme Innovation Roundtable in Washington D.C.

A VITAL COMPONENT OF GLA’S RESEARCH INITIATIVES INCLUDES EARLY-STAGE FUNDING TO ASSIST SCIENTISTS AT A CRITICAL STAGE IN THEIR RESEARCH.

For the past three years, Nicole Baumgarth, D.V.M., Ph.D.—Professor of Immunology at the Department of Pathology, Microbiology & Immunology and the Center for Comparative Medicine, University of California, Davis—has received funding from GLA for research into the regulation of immunity to *Borrelia burgdorferi* infection in mice. Specifically, Dr. Baumgarth was able to make progress in the analysis of T-cell responses to *B. burgdorferi*. At the same time, she generated additional samples and data from the studies that allowed her to investigate new avenues of research into the quality of antibodies generated.

The preliminary data generated from GLA funding were instrumental in developing a new line of investigation into antibody-mediated immunity induced in response to *B. burgdorferi* infection. This finding led to Dr. Baumgarth being awarded a three-year, $1.1 million grant from the Department of Defense. Commenting on the award, Dr. Baumgarth acknowledged GLA’s role in helping advance her research. “The funding received from GLA over the last three years,” she said, “was critical for us to continue to conduct experiments.”

At our Greenwich Gala in May, Dr. Baumgarth received GLA’s Lauren F. Brooks Hope Award for being among the first to document immunologic failures on multiple levels in Lyme disease. In accepting the award, she said: “We are all here to no longer have to be here...to find a cure and, even better, to find a mechanism to prevent this disease so none of us have to think about how this horrible disease is affecting our loved ones.”

Dr. Baumgarth published her findings in 2017 in *Frontiers in Immunology*, “*Borrelia burgdorferi* Manipulates Innate and Adaptive Immunity to Establish Persistence in Rodent Reservoir Hosts”.

Dr. Timothy Sellati, GLA, Dr. Lise Nigrovic, Dr. Édouard Vannier, Dr. Anthony D’Onofrio, Dr. Mayla Hsu, GLA — at GLA Lyme Disease Research Symposium 2018

Dr. Nicole Baumgarth accepting award at GLA Greenwich Gala 2018

Scott Santarella, GLA, Dr. Nicole Baumgarth, Jesse Ruben

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GLA’S SAB PLAYS A CRITICAL ROLE IN HELPING RESEARCHERS GET SEED FUNDING. THIS ALLOWS THEM A MECHANISM WHERE THEY CAN BE MORE INNOVATIVE AND WORK ON IDEAS THAT MIGHT NOT OTHERWISE FIT STRICT GOVERNMENT FUNDING CRITERIA FOR INCLUSION.

— John Belisle, Ph.D.

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GLOBAL LYME ALLIANCE – ANNUAL REPORT 2018

GLOBAL LYME ALLIANCE – ANNUAL REPORT 2018

INNOVATION

INNOVATION

A GLA SUCCESS STORY
In 2018, Global Lyme Alliance-funded research scientists made progress on a number of fronts, especially in diagnostics and potentially transformative therapies. These published studies confirm the impact of GLA’s research selection process, in identifying and funding the most promising projects that yield impact. Here are some GLA-funded studies published by our dedicated grantees this year:


Image from GLA-funded researcher Dr. Utpal Pal’s published paper, “Ixodes Immune Responses Against Lyme Disease Pathogens”, highlighting examples of Ixodes immune components that impact persistence of Lyme disease agents.
ACCELERATING EDUCATION

In 2018, GLA reached people across the globe with its education message, both in person and online. This is accomplished through our extensive, and ever-expanding, set of initiatives to educate the community and provide much-needed resources and information. Programs include:

LYME EDUCATION AMBASSADOR PROGRAM (LEAP)
In 2018, GLA launched its Lyme Education Ambassador Program to raise public awareness and teach people how to prevent Lyme and other tick-borne diseases, as well as be aware of disease symptoms. GLA’s team of volunteer Ambassadors undergo formal training which prepares them to present to local organizations, professional associations, civic groups, schools, corporations and others. By the end of the year, 32 individuals from communities across the country had completed their training. The number of Ambassadors is expected to grow in 2019. We are proud that this important education initiative has resulted in subsequent programs by other Lyme-related organizations, following GLA’s leadership role in educating the community.

BE TICK AWARE™ TICK BITE PREVENTION PROGRAM
GLA’s successful Be Tick AWARE tick bite prevention program makes learning and understanding the key elements to successful tick bite prevention easy — from avoiding tick habitats, to using tick repellent, to checking for ticks. The Be Tick AWARE message is an integral part of GLA’s education and outreach messaging and part of an awareness poster featuring PGA Championship winner Jimmy Walker. Be Tick AWARE kits and materials are available to the public.

SUMMER CAMP INITIATIVE
Children are at highest risk for Lyme and other tick-borne illnesses. Teaching them how to protect themselves from ticks is critical to stemming the tide of new Lyme cases. GLA continued its partnership with Ivy Oaks Analytics in 2018 to educate summer camp directors, staffers, and campers themselves about tick dangers. Some 125 camps in 14 states, many known as hotbeds for ticks, received GLA’s Be Tick AWARE prevention kits. Through this program, GLA helped protect more than 100,000 individuals in 2018. The plan will continue to expand in 2019.

SCHOOLS
Thousands of educators throughout the United States accessed GLA’s engaging online, interactive curriculum, “It’s Time to Be Lyme Alert,” specially produced for students in grades K-12. The curriculum teaches students how to identify ticks, learn about tick habitats, and what to do if a tick is found. The online Lyme Alert curriculum complements GLA’s print curriculum program.

PROFESSIONAL EDUCATION
To educate physicians on how to diagnose and treat Lyme in a timely and effective manner, GLA offered a free Continuing Medical Education (CME)-accredited education program, “Pediatric Tick-Borne Disease: Diagnosis and Management.” To date, more than 10,000 healthcare professionals have participated in the program.

GLA HAS BEEN SUCH A COMFORT DURING MY OWN TREATMENT. ON THE DARK DAYS, KNOWING I’M NOT ALONE IS SUCH A COMFORT. THANKS FOR ALL YOU DO!

— Annie P., Washington
PROFESSIONAL EDUCATION

CME PROGRAM

Pediatric Tick-Borne Disease: Diagnosis & Management
Participants by Specialty 2018 — Top 10

- 18%
- 8%
- 4%
- 2%
- 2%
- 2%
- 1%
- 1%
- 1%
- 1%
- 62%

“EACH DAY I TRUST EVERY DOLLAR DONATED BRINGS US CLOSER TO A HEALING CURE FOR EVERY PERSON WHO IS CHALLENGED WITH THIS DISEASE.”

— Robin G., California
IN 2018, GLOBAL LYME ALLIANCE AWARDED CLOSE TO $2 MILLION IN A DIVERSE PORTFOLIO OF SCIENTIFIC RESEARCH GRANTS TO 15 SCIENTISTS AT LEADING ACADEMIC AND MEDICAL INSTITUTIONS ACROSS THE COUNTRY. THE GRANTS WERE AWARDED FOLLOWING A RIGOROUS PEER REVIEW PROCESS BY GLA’S SCIENTIFIC ADVISORY BOARD.

These brilliant scientists are working to find the answers that will ultimately cure Lyme and other tick-borne diseases. They are working on basic science and achieving many advances, including progress in the development of a reliable diagnostic test and identifying potentially new therapeutic drugs. Thanks to their hard work and dedication, they give hope to us all.

Nicole Baumgarth, D.V.M., Ph.D.
University of California-Davis
Dr. Baumgarth, using mouse models for her studies, is exploring the mechanisms underlying successful immune responses to pathogens. STUDY: “Defining protective antibody-mediated immunity to Borrelia burgdorferi”

Catherine Brissette, Ph.D.
University of North Dakota
Dr. Brissette is studying the effect of maternal Lyme disease on the offspring of infected mice, and will determine the timing of transplacental (from mother to fetus) infection. STUDY: “Adverse outcomes in gestation as consequences of immune responses to B. burgdorferi infection”

Henry Hampton, Ph.D.
Institute for Systems Biology
Dr. Hampton’s work focuses on the gene expression changes in patients at various stages of Lyme disease. STUDY: “A longitudinal systems-level dissection of the immune response during Lyme disease”

Kim Lewis, Ph.D.
Northeastern University
Dr. Lewis has found novel drugs that are effective against persister forms of B. burgdorferi. He continues his study to identify drugs and combinations of drugs that may be useful for treating Lyme disease more effectively than current therapies. STUDY: “Treatment of Lyme disease”

Richard Marconi, Ph.D.
Virginia Commonwealth University Medical Center
Therapeutic vaccines are designed to elicit beneficial immune responses after infection, and may be important new tools in the treatment of Lyme disease. This study will identify critical B.burgdorferi targets and design a vaccine to enhance bacterial killing. STUDY: “Therapeutic vaccine for Lyme disease”

Lise Nigrovic, M.D., M.P.H.
Boston Children’s Hospital and Harvard Medical School
This study is designed to establish a systematic collection of patient information and samples from six clinical sites, for detection of B. burgdorferi and tick-borne co-infections in children living in Lyme-endemic areas. STUDY: “A pediatric multi-center Lyme disease research network with bio sample collection”

Mark Soloski, Ph.D.
Johns Hopkins University School of Medicine
This study will identify T cell subsets that are active during infection and determine what portions of the bacteria are recognized by them. This may help to explain immune dysfunctions that cause many patients to suffer continued symptoms after initial treatment. STUDY: “T cell immunity in human Lyme borreliosis”

Klemen Strle, Ph.D.
Harvard Medical School and Massachusetts General Hospital
This study will identify specific genes whose polymorphisms may promote immune dysfunction and more severe acute and post treatment disease. STUDY: “Host genetic factors in the pathogenesis of Lyme disease and its post-Lyme syndrome”

Edouard Vannier, Ph.D.
Tufts University
Babesia is a tick-borne pathogen that often co-infects along with Lyme. Dr. Vannier’s study centers on neutralizing antibodies that may promote clearance of the parasite from infected mice. STUDY: “The design of an antibody-based therapy for severe babesiosis”

Ying Zhang, M.D., Ph.D.
Johns Hopkins Bloomberg School of Public Health
Dr. Zhang has found antigens expressed on B. burgdorferi that are specific for the persister form. He will now determine whether antibodies that recognize persister bacteria exist in patients with post-treatment Lyme disease syndrome. This could lead to a diagnostic test for dormant Lyme bacteria. STUDY: “High activity of selective essential oils against Borrelia persisters”

Postdoctoral Blackman Fellows:
George Aranjuez, Ph.D., University of Central Florida
Ashley Grosnong, Ph.D., University of Connecticut
Chrysoula Kitsou, Ph.D., University of Maryland
Matthew Muramatsu, Ph.D., University of Texas-Southwestern
Bijaya Sharma, Ph.D., Tufts University

FUNDING BY TYPE
2017—2018 Grants Cycle
Coast-to-Coast Outreach and Impact

Endurance Event (Location)
- Brooklyn, NY
- Buffalo, NY
- Greenwich, CT
- Long Island, NY (9)
- Los Angeles, CA
- Nashville, TN
- New York, NY (7)
- Philadelphia, PA (4)
- Raleigh, NC
- Santa Cruz, CA
- Squaw Valley, CA
- Tampa, FL
- Tanzania, Africa
- Washington, D.C. (3)

Researchers
- Baltimore, MD
- Boston, MA
- Cambridge, MA
- Chicago, IL
- College Park, MD
- College Station, TX
- Colorado Springs, CO
- Dallas, TX
- Davis, CA
- Durham, NC
- Grand Forks, ND
- Irvine, CA
- Itahas, NY
- Medford, MA
- Millbrook, NY
- Newark, NJ
- New Orleans, LA
- New Haven, CT
- New York, NY
- Orlando, FL
- Philadelphia, PA
- Providence, RI
- Richmond, VA
- San Francisco, CA
- San Antonio, TX
- Seattle, WA
- Stanford, CA
- Sturrs, CT
- St. Louis, MO
- Stony Brook, NY
- Washington, D.C.

Lyme Education Ambassadors
- Clifton Park, NY
- Champaign, IL
- Chicago, IL
- Columbus, MD
- Collins, CO
- Crown Point, ID
- Dallas, TX
- Decatur, TX
- Duncan, OK
- Essex Junction, VT
- Fort Benning, GA
- Houston, TX
- Lincolnville, ME
- Louisville, KY
- Middletown, VA
- New Market, MD
- New York, NY
- Oldsaner, FL
- Pompano Beach, FL
- Sagamore, FL
- San Diego, CA
- Urbana, MA
- West Hurley, NY
- Washington, CT
- Walpole, IL

Fundraising Events
- New York, NY
- Albany, NY
- Buffalo, NY
- Chicago, IL
- Colton-Neck, NJ
- Greenwich, CT
- Hamptom, NY
- Oregon
- Purchase, NY
- Palm Beach, FL

As of 2018. For locations with multiple people or camps, it’s noted.
Throughout the year, GLA continued to expand the content of GLA.org, its highly comprehensive website, and to refine its functionality. By the end of 2018 the site had served more than 283,000 users from 193 countries, which constitutes a 124% increase in total website traffic over 2017. GLA.org provides reliable information and resources focusing on tick-bite prevention, tick removal, methods of protecting children and pets, locating Lyme-literate doctors and laboratories, as well as blogs, personal stories and up-to-date research findings.

In 2018 GLA introduced an expanded Lyme Resources section on the site, providing users with access to important information from tick testing labs, financial resources, support groups, to patient and caregiver support.

### Website

GLA.org, its highly comprehensive website, and to refine its functionality. By the end of 2018 the site had served more than 283,000 users from 193 countries, which constitutes a 124% increase in total website traffic over 2017. GLA.org provides reliable information and resources focusing on tick-bite prevention, tick removal, methods of protecting children and pets, locating Lyme-literate doctors and laboratories, as well as blogs, personal stories and up-to-date research findings.

In 2018 GLA introduced an expanded Lyme Resources section on the site, providing users with access to important information from tick testing labs, financial resources, support groups, to patient and caregiver support.

### Lyme-Literate Doctor Referrals

It’s not easy to find doctors with experience diagnosing and treating Lyme disease. For this reason, GLA has been actively connecting patients and their families with Lyme-literate doctors around the nation. To date, GLA has helped more than 45,000 families connect with health practitioners who know how to treat Lyme and other complex tick-borne diseases from a perspective which relies on the entirety of the patient’s health profile as opposed to just the current problematic Lyme diagnostic test alone.

### Social Media

Social media has become an increasingly important way to reach and engage Lyme patients, their families and caregivers, as well as community-at-large. Our Instagram community climbed to 10,000 followers by year’s end—the most of any Lyme organization. Moreover, our Facebook community had a total reach of 3.2 million, with more than 1.6 million Twitter impressions and more than 78,000 views on GLA’s YouTube.

To raise awareness of critical issues facing the Lyme community, GLA also hosted a Facebook Live discussion with investigative journalist Mary Beth Pfeiffer, author of Lyme: The First Epidemic of Climate Change. Social media also helped GLA’s fundraising efforts. For example, Facebook fundraising jumped 700% from 2017 to 2018.

### Newsletter

GLA’s bi-monthly e-mail newsletter highlights the latest in Lyme disease research, blog posts, updates about GLA events, our vast resources online, as well as our educational and awareness-raising initiatives and more.

### Public Service Announcements

GLA continued its Lyme disease awareness campaign with three print ads (PSAs) in Conde Nast’s Vogue, The New Yorker, Glamour, Brides, Architectural Digest and 60 magazines, as well as such Meredith Parenting Group publications as Parents and Family Fun. The PSAs focused on professional athletes who have faced issues with the current unreliable Lyme diagnostic test, Lyme’s broad spectrum of symptoms, and its impact on their ability to function in their daily lives. Each month, the PSAs reached approximately 1.3 million households across the U.S.

### My Son Adam is an Equestrian Athlete and was Diagnosed with Lyme Last Year. Your Information Helped Us to Find a Physician That was Very Knowledgeable. Adam’s Quality of Life Has Greatly Improved and He Continues to Compete Successfully Today. We Thank You for Your Continued Efforts to Fight Lyme Disease.

Jeffrey R, Florida
GLOBAL LYME ALLIANCE CONTINUED TO DISTINGUISH ITSELF IN 2018 BY RECEIVING WIDESPREAD COVERAGE OF OUR IMPORTANT WORK IN PROMINENT NATIONAL, REGIONAL AND DIGITAL MEDIA OUTLETS, AS WELL AS ON SOCIAL MEDIA PAGES. BY THE END OF THE YEAR, WE HAD 20 MILLION MEDIA IMPRESSIONS THROUGH OUR EDUCATIONAL, SOCIAL MEDIA AND OUTREACH EFFORTS WITH COVERAGE IN MAJOR PUBLICATIONS, SUCH AS PREVENTION, READER’S DIGEST AND SHAPE. OUR GREENWICH AND NEW YORK GALAS WERE BOTH COVERED BY LEADING NATIONAL AND GLOBAL OUTLETS, FROM US WEEKLY, ET ONLINE AND BRAVOTV.COM TO THE DAILY MAIL UK.

Prevention Magazine
Shape Magazine
Chemical and Engineering News
Reader’s Digest
Bustle
NBC Right Now
People
Thrive Global
Cheddar TV
Outbreak News
Fox 5 News Channel New York
Albany Times Union
Daily Mail, UK
GOLF Channel
The American Business Journal
Canadian Insider
Shannon Miller Lifestyle
ET Online
Fresno Bee
Invited NYC
Just Jared
Bravo TV.com
Look to the Stars
US Magazine
NY Gossip Gal
Poughkeepsie Journal
The Toronto Star
Greenwich-Post
Greenwich Sentinel
Greenwich Time
Greenwich Magazine
Fairfield County Look
Stamford Advocate
Connecticut Plus
BioPortfolio
Ridgefield’s Hamlet Hub
WGCH
CBS News 8
Infection Control Today
GlobeNewswire
UConnToday

GLA CEO Scott Santarella and MMA/UFC Champion Jim Miller on Good Day New York, Fox 5 NY
GLOBAL LYME ALLIANCE HOSTS MANY EVENTS EACH YEAR—FROM ELEGANT GALAS TO REGIONAL RUN/WALKS, FROM ATHLETIC ENDURANCE EVENTS TO SUBLIME FOOD TASTINGS—AS A MEANS OF RAISING LYME AWARENESS AND MUCH-NEEDED FUNDS TO SUPPORT OUR MISSION.

NEW YORK GALA, OCTOBER 11, 2018
CIPRIANI 42ND STREET, NEW YORK, NY

Our fourth annual New York Gala was attended by more than 700 supporters and raised $2 million. The gala recognized Erin Walker, equestrian and GLA board member, and wife of 2016 PGA Championship winner Jimmy Walker; and Ramona Singer, entrepreneur, philanthropist and star of Bravo TV’s Real Housewives of New York City, for raising Lyme disease awareness.

OTHER HIGHLIGHTS INCLUDED: Global superstar Avril Lavigne who recorded a special message that was shared announcing that she had officially joined GLA’s Board of Directors; past GLA honoree Yolanda Hadid who spoke about her Lyme journey; Tony Award-winning actress and recording artist Sutton Foster who performed; members of the Big Apple Circus who performed; Nobu which provided sushi, and Lori Stokes, co-anchor of “Good Day New York,” who hosted the event.

Co-Chairs for the Gala were Joseph Abboud, celebrated menswear designer and author; Charles Balducci, co-founder, Snyder/Balducci Group, Merrill Lynch; Chris Corrinet, senior VP, CBRE Group; Robert Kobre, vice chairman, Credit Suisse; Jarrod Nadel, chief product development officer, Tailored Brands, Inc.; Drew Nieporent, owner, Myriad Restaurant Group; Peter Norley, CIO, Credit Suisse Securities; and Larry Scott, owner, Lawrence Scott Events. Honorary Event Chairs included Jay McInerney, Jim Miller, Mary Beth Pfeiffer, Mike Schneider, Victor Slezak, and Marisol and Rob Thomas.

GREENWICH GALA, MAY 12, 2018
HYATT REGENCY GREENWICH, GREENWICH, CT

GLA’s Greenwich Gala honored Lyme disease patients and researchers. Serving as emcee was Gretchen Carlson, TV journalist, author, female empowerment advocate and chair of The Miss America Organization. She noted that the three Event Co-Chairs—Stephanie Ercegovic with daughters Adriana & Eloise, Sonya Rolin with daughter Tatiana Donald, and Astrid Womble with daughter Christina Womble, were “successful and resilient moms, strong in spirit and conviction” since all three have been caregivers and supporters of daughters who continue to suffer from Lyme disease.

Dr. Nicole Baumgarth, D.V.M., Ph.D. — Professor of Immunology at the Department of Pathology, Microbiology & Immunology and the Center for Comparative Medicine, University of California, Davis—a GLA grantee, received the Lauren F. Brooks Hope Award for being among the first to document immunologic failures on multiple levels in Lyme disease. Singer-songwriter Jesse Ruben, introduced by his mother, Janet Ruben, received the StarLight Award for sharing his personal story and his ongoing Lyme outreach efforts.
It was a night not to be missed as our second annual SubLyme Soirée, a Chicago foodie fundraiser, raised $108,000 for GLA, almost doubling the amount raised in the previous year. Guests enjoyed healthy and delicious bites provided by Chicago’s top chefs and took part in both live and silent auctions. The event was led by Alex Moresco and Kasey Passen who, sadly, passed away just weeks after the successful fundraiser. The 2019 SubLyme Soiree will be held in Kasey’s honor.

Global Lyme Alliance was honored to be named an official Charity Partner of the 2018 TCS New York City Marathon — a first for any Lyme organization. There were five members of Team GLA — Annie Cunningham of Denver, Colorado; Thor Kirleis (below left) of North Reading, Massachusetts; Nani Luculescu (bottom left) of Los Alamitos, California; Dan Gautreau (below right) of Brooklyn, New York, and Team Captain Jesse Ruben, also of Brooklyn. Each teammate has been affected by Lyme in one way or another. All five finished the marathon and raised more than $22,000 to help support Lyme disease research.

In addition to the Marathon, GLA continued its Charity Endurance Event Program with participants in events such as the Long Island Tough Mudder Half, the Greenwich Half Marathon, Western States 100 Mile Ultramarathon, Sandman & Santa Cruz Triathlon, plus Rock ‘n’ Roll’s Philadelphia 5K, Nashville and Philadelphia Half Marathons, and its Washington D.C. 5K.
THE POWER OF GRASSROOTS FUNDRAISING

GLOBAL LYME ALLIANCE IS FORTUNATE TO HAVE MANY HIGHLY DEDICATED AND PASSIONATE SUPPORTERS—BOTH INDIVIDUALS AND COMPANIES—who raise funds for GLA in creative and fun ways. Among the companies raising funds were Baccarat, Little Birdies Boutique, Verdina Bead, Jojo Rings, Multilevel Fitness, Kendra Scott, Beauty BAKERIE Cosmetics, Teleties, and N2Publishing.

IN ADDITION, WE WOULD LIKE TO THANK:

Fab Finds by Sarah with “Keep Moving” T’s
The Avril Lavigne Foundation, Head Above Water T’s
Chloe O’Neill, More Than Lyme Adventures event
Missy Rasor & Kinsey Fritz, East End Shop and Dine to End Lyme Disease
Dana Blanchard, The Barre Method Darien
Nancy Lombardi, Holly Days and Mistletones
Michael Chadwick, Lit for Lyme
GLA Young Leaders Dinner—Restaurant Week
Alex Moresco & Abbey Storey, for Kendra Scott Event to Honor Kasey Passen
Greenwich High School
Lyme Awareness Club
Jenn Beddard
Indie Cowie
Ryann McIntyre
Denton
Kristin Holman

TOGETHER WE CAN CONQUER LYME DISEASE! #TEAMGLA
GLA IS DRIVEN BY DONATIONS FROM THE COMMUNITY, WHETHER IT’S $50 OR $5,000, EVERY DOLLAR COUNTS. THE GENEROSITY AND COMMITMENT OF OUR SUPPORTERS FUELS GLA’S MISSION TO CONQUER LYME AND OTHER TICK-BORNE DISEASES, AND MOST IMPORTANTLY, HELP PATIENTS.

GLOBAL LYME ALLIANCE’S GROSS REVENUE FOR 2018 WAS $5.5 MILLION.

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support &amp; Revenue</td>
<td>4.5</td>
<td>4.5</td>
<td>4.7</td>
<td>5.5</td>
</tr>
</tbody>
</table>

NOTES: 2015 and 2016 exclude extraordinary in-kind donations. For complete financial information, including current IRS-990, go to GLA.org/financials

GLOBAL LYME ALLIANCE, INC.
STATEMENTS OF ACTIVITIES AND CHANGES IN NET ASSETS
YEARS ENDED DECEMBER 31, 2018 & DECEMBER 31, 2017

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SUPPORT &amp; REVENUE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contributions</td>
<td>$2,380,147</td>
<td>$1,535,565</td>
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<tr>
<td>Special Events Income, Net of Direct Expenses of $651,567 &amp; $666,997, Respectively</td>
<td>$2,345,037</td>
<td>$2,447,835</td>
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<tr>
<td>In-kind Contributions</td>
<td>$78,783</td>
<td>$65,600</td>
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<tr>
<td>Investment Income</td>
<td>$39,469</td>
<td>$13,904</td>
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<tr>
<td><strong>TOTAL SUPPORT &amp; REVENUE</strong></td>
<td>$4,843,436</td>
<td>$4,062,904</td>
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<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
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</thead>
<tbody>
<tr>
<td><strong>EXPENSES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program</td>
<td>$3,321,391</td>
<td>$3,547,830</td>
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<tr>
<td>Management &amp; General</td>
<td>$413,887</td>
<td>$466,327</td>
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<tr>
<td>Fundraising</td>
<td>$797,488</td>
<td>$666,226</td>
</tr>
<tr>
<td><strong>TOTAL EXPENSES</strong></td>
<td>$4,532,766</td>
<td>$4,680,383</td>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHANGES IN NET ASSETS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NET ASSETS, BEGINNING OF YEAR</td>
<td>$4,363,549</td>
<td>$4,981,028</td>
</tr>
<tr>
<td>NET ASSETS, END OF YEAR</td>
<td>$4,674,219</td>
<td>$4,363,549</td>
</tr>
</tbody>
</table>

IMPACT
## 2018 Budget Allocations

### Global Lyme Alliance, Inc.

**Statements of Financial Position**

**December 31, 2018 & December 31, 2017**

<table>
<thead>
<tr>
<th>ASSETS</th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current Assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash &amp; Cash Equivalents</td>
<td>$3,444,250</td>
<td>$4,001,095</td>
</tr>
<tr>
<td>Contributions Receivable, Current</td>
<td>$762,894</td>
<td>$363,065</td>
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<tr>
<td>Prepaid Expenses</td>
<td>$56,446</td>
<td>$45,957</td>
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<td><strong>Total Current Assets</strong></td>
<td>$4,263,590</td>
<td>$4,410,117</td>
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<tr>
<td><strong>Contributions Receivable, Long Term</strong></td>
<td>$398,263</td>
<td>-</td>
</tr>
<tr>
<td><strong>Investment in Third Party</strong></td>
<td>$178,000</td>
<td>$85,024</td>
</tr>
<tr>
<td><strong>Fixed Assets, Net</strong></td>
<td>$69,101</td>
<td>$65,719</td>
</tr>
<tr>
<td><strong>Other Assets</strong></td>
<td>$40,000</td>
<td>$15,676</td>
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<tr>
<td><strong>Total Assets</strong></td>
<td>$4,948,954</td>
<td>$4,576,536</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Liabilities and Net Assets</th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current Liabilities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounts Payable &amp; Accrued Expenses</td>
<td>$191,543</td>
<td>$113,103</td>
</tr>
<tr>
<td>Grants Payable</td>
<td>-</td>
<td>$49,884</td>
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<tr>
<td>Deferred Revenue</td>
<td>$50,000</td>
<td>$50,000</td>
</tr>
<tr>
<td>Deferred Rent</td>
<td>33,192</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total Liabilities</strong></td>
<td>$274,735</td>
<td>$212,987</td>
</tr>
<tr>
<td><strong>Net Assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Without Donor Restrictions</td>
<td>$3,129,781</td>
<td>$3,753,497</td>
</tr>
<tr>
<td>With Donor Restrictions</td>
<td>$1,544,438</td>
<td>$610,052</td>
</tr>
<tr>
<td><strong>Total Net Assets</strong></td>
<td>$4,674,219</td>
<td>$4,363,549</td>
</tr>
<tr>
<td><strong>Total Liabilities and Net Assets</strong></td>
<td>$4,948,954</td>
<td>$4,576,536</td>
</tr>
</tbody>
</table>
IN SEPTEMBER, GLOBAL LYME ALLIANCE REPORTED THE TRAGIC LOSS OF KASEY LYNN PASSEN, 37, A LYME WARRIOR DETERMINED TO MAKE PEOPLE AWARE OF THE ESCALATING LYME THREAT IN CHICAGO AND ITS OUTLYING AREAS. SHE HAD SPEARHEADED SEVERAL EVENTS FOR GLOBAL LYME ALLIANCE, FROM EDUCATIONAL DISCUSSIONS TO TWO HIGHLY SUCCESSFUL “SUBLYME SOIRÉE” FUNDRAISERS. HER GREATEST WISH WAS TO PREVENT OTHERS FROM SUFFERING FROM LYME THE WAY SHE HAD.

Kasey’s passing drives us at GLA to work even harder to reduce the collective suffering of those with Lyme and other tick-borne diseases. Her memory and drive to help patients, pushes us in all facets of our mission, from new research, to education programs, to awareness initiatives.

GLA-funded scientists are focused on pushing the boundaries of science and transforming their discoveries into real change for the Lyme community—including the development of several accurate, dependable diagnostic tests. Among other projects, our researchers are making strides in understanding the role the human immune system plays in the illness, and testing new ways to alleviate symptoms that persist despite standard antibiotic treatment. At the same time, GLA is establishing critical partnerships and collaborations with other nonprofit organizations focused on other diseases as a way of translating their findings into real benefits for Lyme patients.

Healthcare technologies—biotechnology, rapid genetic sequencing and precision medicine—are propelling research at an accelerated pace, allowing scientists to feel more optimistic than ever about solving the Lyme puzzle. This new era of advances in medical technological capability could make significant differences in tens of thousands of lives.

As always though, scientific progress will remain dependent on tenacity, time, and funding. With projected federal cuts in 2019 tick-borne disease funding, GLA must depend on private funding to fill the gap. Your generosity helps us fund urgently-needed science that make discoveries possible, create new treatments, and pioneer pathways to—ultimately—cure Lyme and other tick-borne diseases.

GLA is fighting for all the Kasey’s in the world. We hope you will join us.