



Johns Hopkins Medicine Lyme Disease Research Center

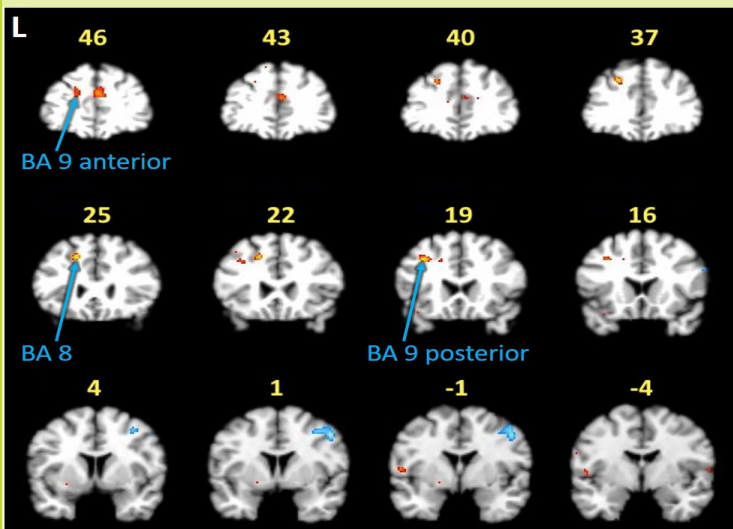
Patient-based Epidemiologic and Clinical Translational Research



Spring 2023 Newsletter

RESEARCH UPDATE

Advanced Neuroimaging Shows Lyme-Disease-Related Brain Fog Has a Biological Basis



Functional MRI brain images show unexpected frontal lobe white matter activations in Lyme disease patients.¹

In a [novel neuroimaging study](#), distinct brain abnormalities were identified in Lyme disease patients as compared to healthy controls. The groundbreaking research was led by Cherie Marvel, PhD, Associate Professor, Departments of Neurology & Psychiatry at Johns Hopkins University School of Medicine in collaboration with the clinical research team directed by John Aucott, MD, at the Lyme Disease Research Center. The study's findings were featured in the [Johns Hopkins NEWS-LETTER](#) as well as [HOPKINS MEDICINE MAGAZINE](#).

Functional and structural brain changes were discovered in the white matter of Lyme disease patients. Cognitive deficits included working memory impairments and slower processing speed. The sophisticated neuroimaging showed that Lyme-disease-associated brain fog is real, biologic, and objectively measurable (not psychosomatic). Neuroinflammation is hypothesized to be driving brain dysfunction.

Ongoing research and education are needed to bring more advanced diagnostics and targeted therapies into the clinic to help patients.

¹Marvel CL, Alm KH, Bhattacharya D, Rebman AW, Bakker A, Morgan OP, et al. (2022) A multimodal neuroimaging study of brain abnormalities and clinical correlates in post treatment Lyme disease. *PLoS ONE* 17(10): e0271425.

2022 IMPACT REPORT



Our Research Center's robust research program is advancing Lyme disease knowledge to improve diagnostics, therapies, and patient care.

The Center's [2022 IMPACT REPORT](#) contains important insights from our multidisciplinary studies that validate patients' symptoms and identify biologic mechanisms of acute Lyme disease and associated chronic illness.

RESEARCH IMPACT HIGHLIGHTS include:

- Research validation that Lyme disease persistent symptoms are real
- Potential biomarker discoveries
- Advanced neuroimaging detection of brain abnormalities
- Clinical treatment trials
- Novel fellowship program

CURRENT STUDIES

Pilot Treatment Study

Our Center began a pilot tetracycline study in 2022 as part of the Clinical Trials Network for Lyme and Other Tick-Borne Diseases, established with a grant from the Steven & Alexandra Cohen Foundation. This pilot trial is investigating tetracycline treatment tolerability in people with post treatment Lyme disease.

[LEARN MORE](#)

SLICE Studies

Have you been recently diagnosed with Lyme disease or do you have a rash that you think may be Lyme disease?

Or, are you interested in participating as a healthy control?

[LEARN MORE](#) to see if you may be eligible for our SLICE studies.

Patient Care ● Research ● Education

OUR MISSION is to bridge the gaps in Lyme disease knowledge and translate our research findings into improved patient care.



NATIONAL NEWS - Progress is occurring on multiple national fronts

Tick Borne Disease Working Group (TBDWG)

Tick-Borne Disease Working Group 2022 Report to Congress

The third and final TBDWG report was submitted to HHS and Congress in February 2023. This report continues to identify significant gaps in prevention, diagnostics, treatments, access, and patient care and provides strong evidence for the urgent need for increased federal support to address the expanding Lyme disease and tickborne disease public health crisis.

[2022 Report to Congress](#)

[2020 Report to Congress](#)

[2018 Report to Congress](#)

Center Director, John Aucott, MD, served as the first Chairman of the TBDWG and served on numerous TBDWG subcommittees, including the Diagnostics subcommittee in 2021-2022, and Center Senior Advisor, Mark Soloski, PhD, served on the Disease Prevention and Treatment subcommittee.

The LymeX Diagnostics Innovation Accelerator



The LymeX Diagnostics Prize, a public-private partnership between HHS and the Steven & Alexandra Cohen Foundation, is a multiphase competition to accelerate the development of improved Lyme disease diagnostics.

LymeX announced ten [Phase 1 winners](#) in February 2023, each of whom were awarded \$100,000 and the opportunity to participate in Phase 2 to further refine their promising prototypes and solutions.

Center Director, John Aucott, MD, and Center Senior Advisor, Mark Soloski, PhD, serve as scientific advisors to the LymeX program.

National Academies of Sciences, Engineering and Medicine



On June 29-30, 2023, there will be a National Academies of Sciences, Engineering and Medicine Workshop: [Toward a Common Research Agenda in Infection-Associated Chronic Illnesses: A Workshop to Examine Common, Overlapping Clinical and Biological Factors](#).

Researchers studying Lyme disease, long COVID, ME/CFS, multiple sclerosis and other infection-associated conditions will be discussing the similarities of potential disease drivers and mechanisms, including pathogen or antigen persistence, immune response dysregulation, altered neurologic function and microbiome changes. Dr. Aucott is speaking at the workshop.

We are hopeful that insights from Lyme disease research and from other infection-associated illnesses will inform one another and potentially accelerate biomarker discovery for diagnostics and improved therapeutic options.

SAVE THE DATE: WEDNESDAY, MAY 10, 2023, 7-9 PM

ADVANCES IN LYME DISEASE AND TICKBORNE DISEASE RESEARCH

Update on diagnostics, potential biomarkers, advanced neuroimaging, and future treatments

LIVESTREAM WEBINAR by John Aucott, MD

Barbara Townsend Cromwell Professor in Lyme Disease and Tickborne Illness; Director, Lyme Disease Research Center; Associate Professor of Medicine, Division of Rheumatology, Johns Hopkins University School of Medicine

Sponsored by the Lyme Care Resource Center [Register NOW](#)

[SIGN UP TODAY](#) for our newsletter

May is Lyme Disease Awareness Month

Subscribe at HopkinsLyme.org/subscribe to stay abreast of the latest in Lyme Disease Research

Please share the link with your family, friends, and health practitioners

Recovering from Lyme Disease can be immensely challenging. If you are in distress or have suicidal thoughts:

- Call 988, the Suicide & Crisis Lifeline. Available 24 hours/day
- Text HELP to Crisis Text Line at 741-741. Available 24 hours/day
- Visit 988lifeline.org for more resources

SUPPORT THE CENTER

Thank you for your continued interest and support.
Together we are bringing hope to the Lyme disease community.

[HOW TO GIVE](#)

The Center is grateful for the support of the Steven and Alexandra Cohen Foundation, the Brennan Family, Global Lyme Alliance, Bay Area Lyme Foundation, Department of Defense, individual donors, foundations, and collaborators. This newsletter is made possible thanks to the support of Lyme disease education and outreach provided by the Kenney Family Foundation.

**LYME DISEASE
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