

Patient-led global interdisciplinary collaboration to clarify the role of INFECTIONS in neurological and psychiatric diseases

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Board of Directors, International Lyme and
Associated Diseases Education Foundation (ILADEF)
IACI Patient & Advocate



Scientific Advisory Board, Galaxy Diagnostics

References





PANDAS

PANS

Schizophrenia

Multiple Sclerosis

Parkinson's

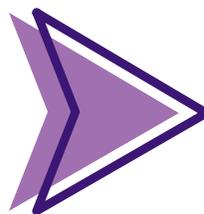
Alzheimer's



First, a Patient



- ✓ **Borrelia burgdorferi (Lyme Disease)**
- ✓ **Bartonella henselae**
- ✓ **Babesia microti**
- ✓ **Chlamydia pneumoniae**
- ✓ **Mycoplasma pneumoniae**

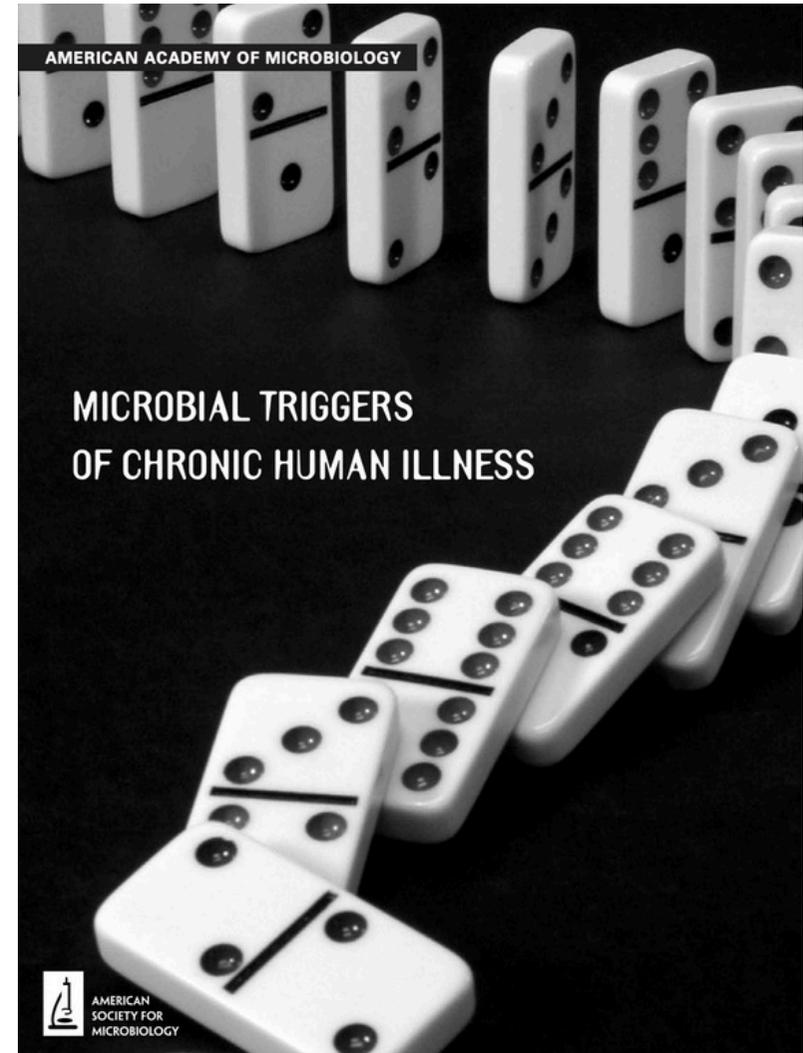


- ✓ **Brain**
- ✓ **GI Tract**
- ✓ **Heart**
- ✓ **Bladder**
- ✓ **Lungs**
- ✓ **Joints**

History: June 2004

Research on **chronic infectious** diseases can incorporate many different elements... Accordingly, **the best research will be multidisciplinary**, involving experts from multiple areas of experience to derive the most complete picture of the issues at hand...

Other diseases, including some extremely **common** and **devastating** conditions, exhibit characteristics that indicate they may be **infectious** as well



Chronic Infections and Children

Ten adolescents picked at random with mental illness severe enough that they required institutionalization—**9 of 10 had evidence of tick-borne infections and 9 of 10 had evidence of autoimmune encephalitis.**

PANDAS and PANS



Memory complaints



Bladder issues



Joint pain



Obsessive compulsive disorder



Anxiety



Restricted/
disordered eating



Sleep disruption

Collaboration in Action



Meet The AlzPI Consortium

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Elizabeth Bradshaw, PhD, Columbia Univ.

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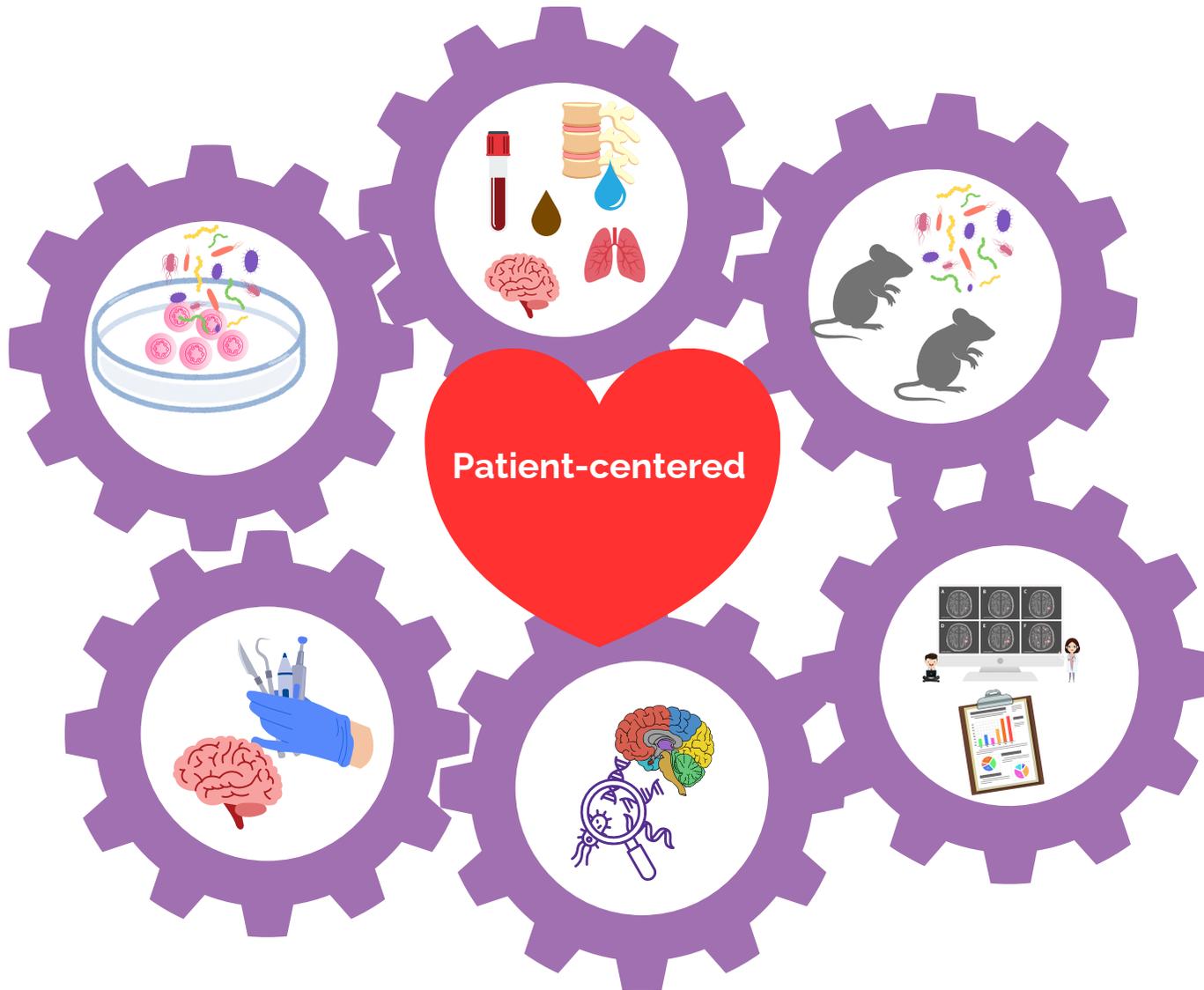
Michael Duggan, PhD, National Institute on Aging

Dana Cairns, PhD, Tufts Univ.

- ✓ Immunology
- ✓ Neuroimaging
- ✓ Neuroengineering
- ✓ Alzheimer's
- ✓ Biostatistics
- ✓ Neuroscience
- ✓ Neuropathology
- ✓ Microbiology
- ✓ Virology
- ✓ Intracellular bacteria
- ✓ Geriatrics
- ✓ Molecular diagnostics
- ✓ Salivary diagnostics
- ✓ Precision medicine
- ✓ Fungal infection
- ✓ Pulmonary/asthma
- ✓ Veterinary
- ✓ Gut microbiome
- ✓ Genetics



AlzPI Framework



- ✓ Consensus Detection Protocol
- ✓ Mechanistic Research
- ✓ Population Studies
- ✓ Target Identificafiton
- ✓ Sterile Autopsy
- ✓ High-impact Reviews
- ✓ Awareness & Education

The Brain and Body

ALZHEIMER'S ASSOCIATION | Alzheimer's & Dementia® THE JOURNAL OF THE ALZHEIMER'S ASSOCIATION

REVIEW ARTICLE | Open Access |

Establishment of a consensus protocol to explore the brain pathobiome in patients with mild cognitive impairment and Alzheimer's disease

Research outline and call for collaboration

Richard Lathe , Nikki M. Schultek , Brian J. Balin, Garth D. Ehrlich, Lavinia Alberi Auber, George Perry, Edward B. Breitschwerdt, David B. Corry, Richard L. Doty, Robert A. Rissman ... [See all authors](#) ▾

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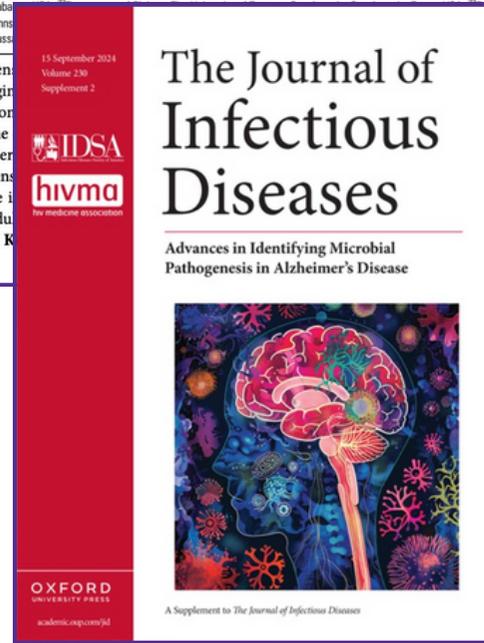
The Journal of Infectious Diseases | SUPPLEMENT ARTICLE | IDSA Infectious Diseases Society of America | hivma hiv medicine association | OXFORD UNIVERSITY PRESS

Sensory Dysfunction, Microbial Infections, and Host Responses in Alzheimer's Disease

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with the environment and establish social bonds. With rated impairment in sensory abilities can reflect a shift's disease (AD) and other neurological disorders. While as trauma and infections can affect sensory function. systems in AD, with emphasis on microbes exploiting potential feedback loop by which sensory function may of sensory changes as first-line surveillance in senior at could precipitate brain pathology. 's disease; microbes; parasites.



Lathe, Schultek, Balin et. al., Alzheimer's and Dementia, June 2023.
 Bathini et al. Sensory Dysfunction, Microbial Infections, and Host Responses in AD. JID 2024.



Raising Awareness



September 28, 2024

The shocking discovery that your brain is teeming with microbes - and what it means for your health. Plus: scuba-diving lizards, the truth about common sense, and did Earth have a ring like Saturn?

The Philadelphia Inquirer

EXPERT OPINION

Alzheimer's research nearing some major breakthroughs

By Nikki Schultek and Brian J. Balin
For The Inquirer

Research on Alzheimer's disease is approaching a much-needed tipping point. The media spotlight has been on newly available drugs like lecanemab and donanemab that target the protein plaques associated with the disease's progression. But a burgeoning consensus is emerging around a long-standing hypothesis that was once considered unorthodox and quixotic: Infections may trigger or exacerbate Alzheimer's disease and other neurological conditions.

relationship between humans and our many invisible passengers. This extends beyond dementia and Alzheimer's disease. Several neurological conditions, including multiple sclerosis, have been linked with infections or changes in the collection of microbes inside all of us, but establishing a causal relationship has remained elusive.

Even so, there are case reports in medical journals of "reversible dementias" caused by infections. In these reports, doctors identified underlying infections, and patients improved drastically once they received

Earlier this year, before the Alzheimer's Association International Conference in Philadelphia, a group of scientists gathered a few miles away at Philadelphia College of Osteopathic Medicine (PCOM) as part of the Alzheimer's Pathobiome Initiative. Joining scientists at PCOM were colleagues from Baylor, Columbia, Drexel, Harvard and Massachusetts General Hospital, The Hebrew University in Jerusalem, Oxford, Pittsburgh, and Tulane, among others — all sharing findings that point to the significance of the so-called "infection hypothesis" in Alzheimer's disease and other neurolog-

Science & technology | Going viral

Do viruses trigger Alzheimer's?

A growing group of scientists think so, and are asking whether antivirals could treat the disease

Share

The Economist

BIOMEDICINE

Hunt for infectious causes of Alzheimer's gains momentum

New efforts seek causal links between pathogens and dementia

Check for updates

By Jennifer Couzin-Frankel, in Philadelphia

help mobilize the protein. And in 2018, they reported mo amyloid beta herpes simpl that the prot ective respo

In 2019, an romonas gin gum disease zheimer's pa to the gums Alzheimer's p ing excess a news that F like changes culture near

his week, thousands of researchers are flocking to downtown Philadelphia for what's billed as the largest international conference dedicated to Alzheimer's disease. But several kilometers away a much smaller group congregated for an alternative meetup: a day-long dive into whether and how pathogens might cause the fatal dementia.

Saturday's gathering of about 80 scientists on the city's periphery is something of a metaphor for where the idea sits in the larger Alzheimer's community, long dominated by the view that the plaque-forming brain protein amyloid beta drives the disease.

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In 2019, an romonas gin gum disease zheimer's pa to the gums Alzheimer's p ing excess a news that F like changes culture near

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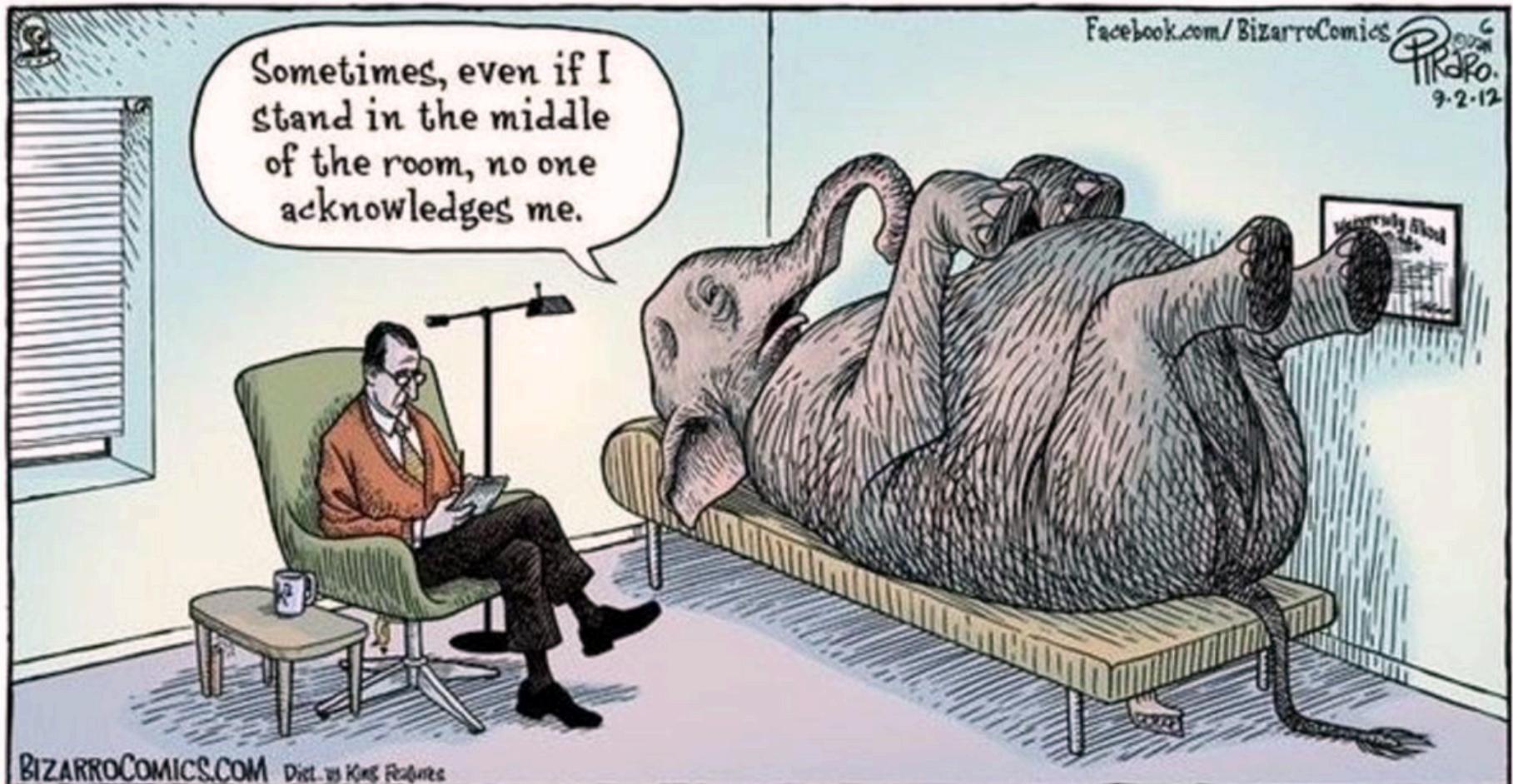
The Guardian

The whole picture

The brain microbiome: could understanding it help prevent dementia?



The Elephant in the Middle of the Room



Infections can cause cases of chronic disease!

The requisite knowledge and technological capabilities to **treat** and **cure** disease already exist



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RESEARCH ARTICLE



Manhattan Projects for Preventive Medicine

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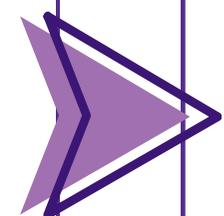
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ABSTRACT

In this opinion article, we argue that the requisite scientific knowledge and technological capabilities to elucidate the fundamental causes of chronic diseases—and to develop strategies for their prevention, reversal, and cure—already exist today. However, to implement this vision, a transformative shift in the scientific approach is required (Figure 1). We advocate for a new way to conduct science, inspired by the organizational structure, interdisciplinary synergy, and operational excellence of the Manhattan Project (not its goal of developing a weapon). This model will overcome the current fragmentation of the scientific efforts, which are dispersed across tens of thousands of isolated projects, each with distinct objectives, datasets, methodologies, and analyses. It will also not be distracted and disoriented by the current incentive structure in academic research, which focuses on publications. By adopting the collaborative and goal-oriented framework of the Manhattan Project, humanity can refocus the scientific efforts to effectively confront and consign chronic diseases to the annals of history.

KEYWORDS

preventive medicine; chronic diseases; eradication.



Identify Root Causes

Investigate the fundamental drivers of chronic disease, including environmental, microbial, and human factors, as well as their complex interactions.



Describe Strategies

Summarize diagnostic, preventive, and therapeutic strategies based on existing evidence.



Disseminate Knowledge

Implement broad dissemination strategies to maximize the impact of research findings globally.



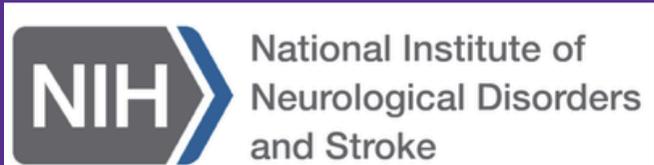
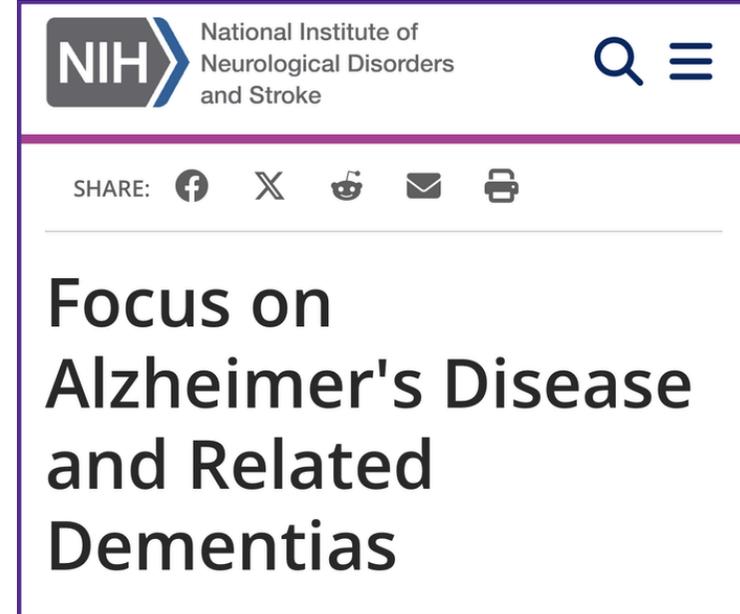
Support Translation

Provide technical assistance to commercial partners interested in applying the project's findings.

Progress - We have a PLAN

Recommendation #1 NINDS Summit, June 2nd 2025

Investigate how the exposome and the human body interact to influence AD/ADRD, with a focus on **microbes** and **infectious** diseases that may alter risk or the progression of AD/ADRD



Collaborative Opportunities for Multidisciplinary, Bold, and Innovative Neuroscience (COMBINE) (RM1 Clinical Trial Optional)

\$1.5M/year for 5 years

Bold, team-science - up to 6 Principal Investigators. How will the project challenge existing paradigms, overcome long-standing roadblocks to progress, and/or develop new synergies between different scientific fields?



The Future



The **PROBLEM** is bigger than one infection or a single disease

#GRATEFUL

Family, Friends, Brian Balin, Jay Feldstein & our PCOM team, our AlzPI team, Presley Taylor, Steve Sim & Marilyn Einstein, The Sim Einstein Research Foundation, Inc., The Gosnell Foundation, The Bill and Marian Cook Foundation, the late **Charles W. Stratton IV**.

AlzPI



Pathobiome
Research Center

