



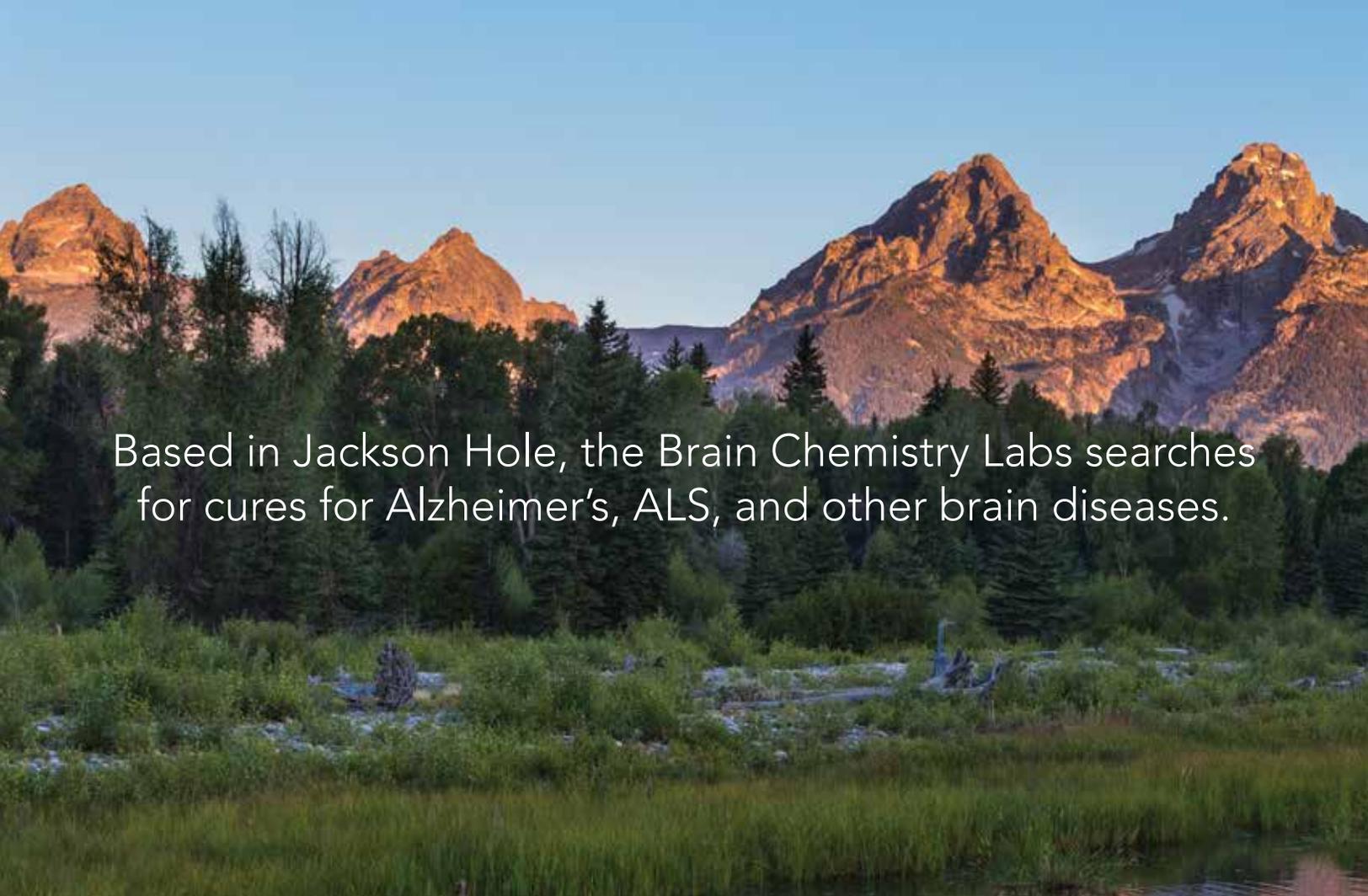
BRAIN CHEMISTRY LABS

The Institute for EthnoMedicine



PATH TO A CURE

We are an innovative non-profit dedicated to following a path to cure brain diseases including Alzheimer's, ALS and Parkinson's through cutting edge research.

A scenic landscape of a mountain range at sunset or sunrise. The mountains are illuminated with a warm, golden light, contrasting with the clear blue sky. In the middle ground, a dense forest of evergreen trees is visible. The foreground consists of a grassy field with some fallen logs and a small stream in the bottom right corner.

Based in Jackson Hole, the Brain Chemistry Labs searches for cures for Alzheimer's, ALS, and other brain diseases.



Photo credit: Dr. Rachael Dunlop

FROM THE CHAIRMAN OF THE BOARD

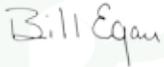
Since Brain Chemistry Labs was founded 10 years ago, we have moved along a path from discovery through preclinical and clinical trials with a drug that we believe will treat ALS and Alzheimer's—at an average cost of \$1.5 million per year.

Within just two years, we believe we will have data to confirm our investigational treatment's efficacy in slowing the progression of ALS — that could also lead to a novel treatment for Alzheimer's and Parkinson's patients.

Brain Chemistry Labs has achieved unprecedented success due to our unique structure as a nonprofit “virtual pharmaceutical company.” We are a consortium of fifty research scientists from around the world, including preeminent neurologists such as Dr. Walter Bradley at the University of Miami, Dr. Elijah Stommel at Dartmouth-Hitchcock, and Dr. Robert Miller of Forbes Norris MDA/ALS Research Center.

Central to our success is Executive Director, Dr. Paul Alan Cox —discoverer of the AIDS drug zidovudine, whom neurologist Oliver Sacks credited for solving the “Guam Problem,” the Rosetta Stone of neurodegenerative diseases.

Brain Chemistry Labs is the most innovative and cost-efficient drug discovery organization I've ever encountered.



Bill Egan
Chairman of the Board and
Former Executive Vice-President of Johnson & Johnson Consumer Products Worldwide

OUR INNOVATIVE RESEARCH APPROACH

Conceived on July 4, 2004, the Institute for Ethnomedicine opened new laboratories in June 2006. Patterned after the Miller Research Institute at UC Berkeley and the Institute for Advanced Studies at Princeton, the Institute is an innovative research organization designed to rapidly discover new cures for serious illnesses.

The Brain Chemistry Labs uses a novel model for drug discovery that is significantly different from the traditional pharmaceutical company. Rather than investing in brick and mortar and establishing a large, bureaucratic organization, the Institute has created a virtual model by inviting world leaders in the appropriate disciplines to perform key components of our research. This collaboration is not only unique, but very efficient and effective in rapidly advancing the research unencumbered by bureaucracy. It incorporates an innovative blend of novel discovery, exceptional human capital and a singular mission to move from cause to cure.

BRAIN CHEMISTRY LABS

DISCOVERY FOCUSED



PATIENT-CENTRIC



VIRTUAL & FREE FLOWING



SELF-FUNDED



HUMAN CHEMISTRY



EFFICIENT & FAST



PHARMA INC

COMMERCIALLY FOCUSED



PROFIT-CENTRIC



BUREAUCRATIC HIERARCHY



SHAREHOLDERS



INORGANIC CHEMISTRY



SLOW & COSTLY



A DECADE OF NOVEL DRUG DEVELOPMENT

What has been accomplished over the last decade is truly remarkable with the advancement of discovery to development. The combination of innovative field research and in lab analysis enabled us to identify a dietary neurotoxin and amino acid therapy for neurodegenerative diseases. The following captures some of the milestones along our path to a cure:

2016 We announced in the *Proceedings of the Royal Society, B*, that chronic dietary exposure to BMAA causes brain tangles and plaques nearly identical to those that occur in the brains of the Chamorro villagers who died from the Guam disease. This brain neuropathology is also very similar to that of Alzheimer's patients. Even more importantly, we found that supplementing the diet with L-serine can help prevent these brain tangles. We also completed a Phase I ALS trial —to demonstrate the safety of the naturally occurring

amino acid, L-serine, in humans—that showed encouraging signs of slowing disease progression among enrolled patients.

2015 We performed a second non-human primate study to confirm our initial study results that chronic exposure to BMAA produced neurofibrillary tangles and sparse amyloid plaques in their brains, but L-serine significantly reduced the density of tangles.

2014 U.S. patent 8,603,753 was issued for our invention of BMAA antibodies. Our FDA-approved Phase I human clinical trial on L-serine for ALS patients continued with colleagues at the Phoenix Neurological Associates.

2013 We discovered a population of Japanese villagers who consume a diet rich in L-serine (3-4 times greater than the average American diet) and are virtually devoid of neurodegenerative diseases.

Our discovery of L-serine as a potential new therapy for ALS and Alzheimer's was favorably reported by *The Lancet*.

2012 We announced at the International Symposium on ALS/ MND in Sydney our discovery that BMAA substitutes for L-serine, resulting in protein misfolding and collapse. With our consortium member Dr. Deborah Mash, we detected BMAA in shark fin soup and with Dr. Elijah Stommel we detected BMAA in oysters from Chesapeake Bay eaten by ALS patients.

2011 We discovered BMAA in shellfish from Florida Bay consumed by an ALS patient. We discovered AEG, a chemical building block of primitive genetic systems, in cyanobacteria.

2010 We discovered that L-serine blocks the misincorporation of BMAA in neuroproteins. Our

consortium member Dr. Elijah Stommel at Dartmouth Medical School discovered that residences of ALS patients in New England are clustered around cyanobacterially-contaminated lakes, and in France, Dr. William Camu discovered an ALS cluster among oyster farmers.

2009 The editors of the journal *Amyotrophic Lateral Sclerosis* offered an entire issue to detail our research. With our consortium members Drs. Ken Rodgers and Rachael Dunlop, we collaborated to discover which amino acid BMAA substitutes for, causing brain proteins to misfold.

2008 U.S. patent 7,256,002 was issued for screening human samples for BMAA to predict risk of ALS. We discovered BMAA in cyanobacteria from deserts in the Gulf and linked this to the doubling of ALS in veterans of Operation Desert Storm.

2007 Our discovery of BMAA in brain tissues of Alzheimer's patients was independently replicated by a team led by consortium member Dr. Deborah Mash at the Miami Brain Bank. We produced our first antibodies to BMAA.

2006 Our laboratories were opened in Jackson, Wyoming. We continued to build our 50 member scientific consortium to help us discover new cures. An instrument to detect miniscule amounts of toxins—a triple quadrupole mass spectrometer—was installed at the Institute's laboratories.

2005 The Institute announced in the *Proceedings of the National Academy of Sciences* that many species of cyanobacteria produce an environmental algae toxin called BMAA. This means that exposure to BMAA can occur almost anywhere in the world. The Institute's research was profiled in the *Journal of the American Medical Association*, *Scientific American*, and *The New Yorker*.

BMAA injures motor neurons –
Experimental Neurology
201: 244-252

'06

BMAA occurs in British reservoirs –
Environmental Microbiology
10(3): 702-708

'08

BMAA linked to ALS in Gulf War veterans –
Amyotrophic Lateral Sclerosis
10(Supplement 2): 109-117

'09

BMAA replaces L-serine in neuroproteins –
PLOS ONE
8(9): e75376

'13

BMAA triggers Alzheimer's neuropathology –
Proceedings of the Royal Society B 283: 20152397

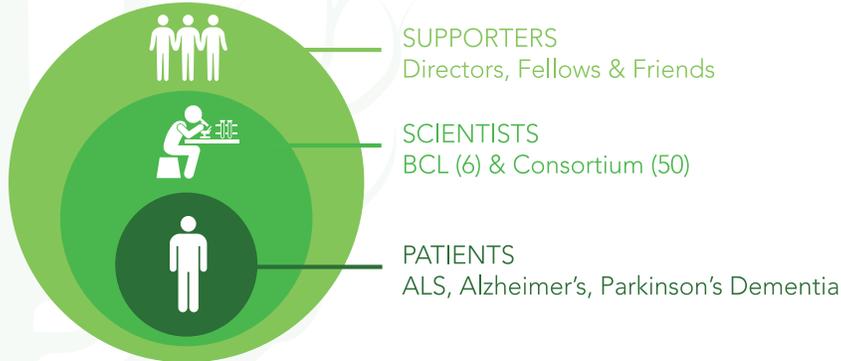
'16

Institute concludes FDA-approved Phase I human trial for ALS
Amyotrophic Lateral Sclerosis and Frontotemporal Degeneration
(2016): 1-5

A FOCUS ON PATIENTS

There are no drugs that can slow disease progression for Alzheimer's, ALS, or Parkinson's. The number of sufferers grows as does the cost of caring for them.

| | AMERICANS SUFFERING | NATIONAL COST |
|--------------|---------------------|--------------------------|
| Alzheimer's | 4,500,000 | \$205,000,000,000 |
| Parkinson's | 1,500,000 | \$15,000,000,000 |
| ALS | 37,000 | \$400,000,000 |
| Total | 6,037,000 | \$220,400,000,000 |



The Brain Chemistry Labs model is patient focused, efficient and very cost effective.

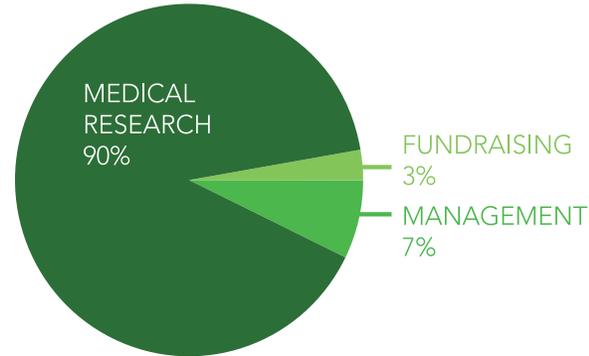
COST EFFICIENT RESEARCH

It typically takes a pharmaceutical company 15 years and often \$1 billion to bring a drug through the necessary clinical trials for FDA approval. Over the last decade we have spent \$15 million and currently have a new drug, L-serine, in human clinical trials for both Alzheimer's and ALS.

About 90% of our revenues go towards medical research, 7% to management and administration and 3% to fundraising. Over the past 10 years over 40% of our funds have been furnished by our Board of Directors.

Going forward we will need between \$1.5 and \$2 million annually for our operations and ongoing research and additional funds for new clinical trials.

We need and would deeply appreciate your financial support.



OUR TEAM

SCIENTISTS

Dr. Paul Alan Cox

Acclaimed by TIME magazine as one of eleven “Heroes of Medicine” and renowned for his discovery of the anti-AIDS drug Prostratin, he received his Ph.D. from Harvard University. He has published over 200 scientific papers.

Dr. Sandra Banack

Regarded as a leading authority in ecology and ecotoxicology, she received her Ph.D. at the University of California, Berkeley. She has published over 60 scientific papers.

Dr. James Metcalf

Regarded as one of the world’s top experts in cyanotoxins, he received his Ph.D. from the University of Dundee. He has published over 70 scientific papers.

Dr. Rachael Dunlop

An expert on protein misincorporation and cell biology, she received her Ph.D. from the University of Sydney. She has published over 30 scientific papers.

Mr. James Powell

An expert on RNA, DNA, and protein expression, he received his M.S. degree from the University of South Carolina.

CLINICAL ADVISORS

Dr. Walter Bradley

Chairman Emeritus, Dept. of Neurology, Univ. of Miami Miller School of Medicine

Dr. Elijah Stommel

Dept. of Neurology, Geisel School of Medicine, Dartmouth College

Dr. Todd Levine

Phoenix Neurological Associates

Dr. Robert Miller

Forbes Norris MDA/ALS Research Center

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INTERNATIONAL CONSORTIUM OF SCIENTISTS

Key to innovation and discovery at the Brain Chemistry Labs is our 50 scientist consortium. Top scientists from 28 universities in 12 countries have been recruited to collaborate in our research. They are world leaders in a variety of disciplines including ethnobotany, neurology, physiology, epidemiology, oceanography, neuroanatomy, molecular biology, inorganic chemistry, physics, microbiology, ecology, and synthetic chemistry.





 **BRAIN CHEMISTRY LABS**
The Institute for EthnoMedicine

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Jackson Hole provides an inspiring environment for innovative new approaches to drug discovery. We maintain a state-of-the-art lab with cutting-edge instrumentation, designed to maximize scientific innovation. It is available to all members of the consortium. We welcome guests to visit our lab in Jackson.