

CureAlz Researchers Recognized

Tsai and Wyss-Coray
Earn High Honors

Heroes Making a Difference

Art, Athletics, Events and More
Support Cure Alzheimer's Fund

Accolades for CureAlz

Several Organizations
Recognize CureAlz as a Top Charity

CUREALZ UPDATE

SPRING SEASON 2019



Increased Alzheimer's Risk
During Menopause Transition

Increased Alzheimer's Risk During Menopause Transition



The results of a three-year longitudinal brain imaging study supported by Cure Alzheimer's Fund (CureAlz) are in. The study, conducted by Lisa Mosconi, Ph.D., of Weill Cornell Medical College, in collaboration with Roberta Diaz Brinton, Ph.D., at the Departments of Pharmacology and Neurology, College of Medicine, University of Arizona, Tucson, recruited 59 cognitively normal participants between the ages of 40 and 60. The researchers were interested in identifying how menopause influences the change in biomarkers for Alzheimer's disease.

Menopause is known to cause metabolic changes in the brain that may increase the risk of Alzheimer's disease. Two-thirds of late-onset Alzheimer's disease patients are women, making the changes in the brain that accompany menopause a critical area of investigation.

The participants—men and women—were asked to undergo imaging tests (PET) to assess cognitive performance. The study found that in the menopausal and

perimenopausal group, there was a decline in an estrogen-dependent memory test as compared with men. The menopausal group exhibited the highest rate of loss in an area of the brain critical for memory known as the hippocampus, as well as the greatest increase in amyloid buildup.

This study sheds crucial light on the changes in the brain that are specific to women, as well as the optimal window of opportunity for therapeutic intervention to prevent or delay progression of brain changes associated with the endocrine aging process.

Estrogen Loss and Brain Activity

Estrogen is a fundamental regulator of the metabolic system of the female brain and body. When women undergo the transition to menopause, there is a shift in the brain's use of glucose that accompanies this

change. Within the brain, estrogen regulates glucose transport and mitochondrial function to generate adenosine triphosphate (ATP), often called the “molecular currency of energy transfer,” as it is the chemical that provides energy to drive everything from muscle contraction to action potential firing.

During menopause, the decline in circulating estrogen contributes to a decline in brain cellular energy. Many researchers have proposed that the loss of estrogen after menopause could contribute significantly to cognitive decline and Alzheimer’s disease risk in women. In addition, men also undergo age-related changes in hormones that contribute to their risk for dementia.

Some researchers have concluded that estrogen replacement or hormone replacement therapy after menopause would have beneficial effects on cognition in general, and might be able to reduce the risk of Alzheimer’s disease. Epidemiological studies and clinical trials of hormone therapy and cognition have shown mixed results.

The prevailing data indicate that although—thus far—hormone replacement therapy cannot alter the progression of Alzheimer’s disease, it may have the potential to lower the risk of women developing Alzheimer’s disease in the first place if given early enough. Over the past two decades, approximately two dozen observational studies have examined associations between a woman’s use of estrogen-containing hormone therapy and her risk of developing Alzheimer’s disease. Additional investigations are needed to understand the impact of hormones on dementia risk.

This new study supports the idea that post-menopausal hormone therapy can modulate brain bioenergetics, likely leading to the maintenance of cognitive function and reduced risk of Alzheimer’s disease. Any discussion of hormone therapy as a treatment strategy should take place with a doctor, as estrogen receptors exist throughout the body (including the breasts and ovaries) and hormone therapy could increase the risk for certain types of cancers in other places in the body. More research is needed to explore exactly why women are at increased risk for developing Alzheimer’s disease and whether targeting declining estrogen levels could afford protection against the development of Alzheimer’s disease. ■

FROM THE RESEARCHER:

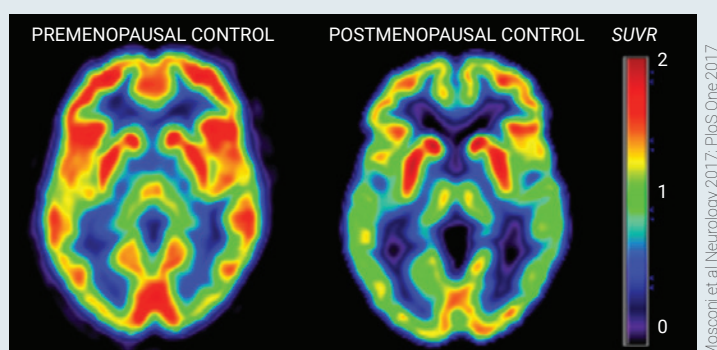
Alzheimer’s and Women’s Health: An Urgent Call

“In the next three minutes, 3 people will develop Alzheimer’s. Two of them will be women. Even adjusting for lengthier lifetimes, women outnumber men 2:1 in the Alzheimer’s population. In 2017, it’s urgent to acknowledge, investigate, and treat Alzheimer’s as a powerfully unrecognized and vital element in women’s health. At the Weill Cornell Alzheimer’s Prevention Clinic, together with the University of Arizona, we have sought to answer the question that we didn’t hear many people asking. *Why are women vulnerable?*”

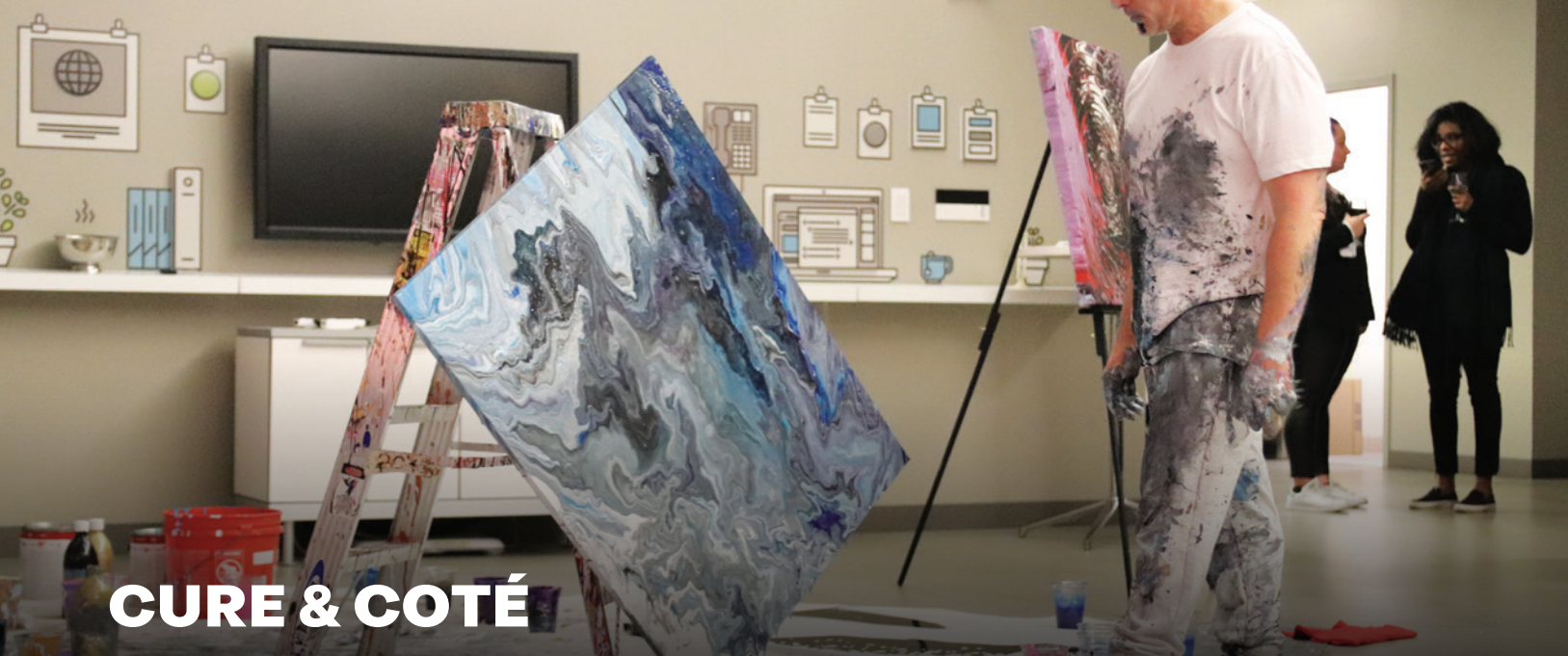
“We set out to shed light on this longstanding mystery by asking: what factors differentiate women from men, specifically as we reach middle age? The first and most obvious place to investigate was women’s fertility. Taking into account some diversity within, the biological systems and processes of fertility are common to all women. And equally ubiquitous across all women—in fact, one of the very hallmarks of women’s middle age—is the decline in fertility, and the beginning of menopause.

“After rigorous study—and common knowledge to any woman in menopause—it turns out that from a biological perspective, menopause affects far more than fertility. When menopausal women experience various symptoms like hot flashes, night sweats, disturbed sleep, etc. they might not realize that these symptoms originate not in the ovaries, but in the brain. By using a brain imaging technique called positron emission tomography (PET), we demonstrated that the ebb in estrogen causes the *loss of a key neuroprotective element in the female brain*, with an aggressively higher vulnerability to brain aging and Alzheimer’s disease.”

—Excerpted from Dr. Lisa Mosconi’s website (www.lisamosconi.com).



The PET scan to the left shows brain activity (e.g., metabolism) in a premenopausal woman; the scan to the right shows brain activity in a postmenopausal woman. The color scale reflects brain activity, with brighter colors indicating more activity, and darker colors indicating lower activity. The scan to the right (menopause) looks ‘greener’ and overall darker, which means that the woman’s brain has substantially lower brain activity (more than 30 percent less) than the one to the left (no signs of menopause).



CURE & COTÉ

"Pretty brutal" is how artist Paul Coté describes the effects of Alzheimer's disease on his family. His dad, a WWII U.S. Army Air Force veteran who passed away in April 2019, and three of his aunts had or are still living with Alzheimer's. "It's a family wipeout," he said.

Coté has become an advocate for scientific research by using his brand of abstract expressionism to raise awareness of and funds for the disease. In March, Coté conducted a live painting performance, during which he created 10 original canvases for

auction, with all proceeds benefiting Cure Alzheimer's Fund. More than \$10,000 was raised. Cure & Coté was generously co-hosted by creative agencies Allen & Gerritsen and Proper Villains in Boston.

Coté's work has been exhibited locally and nationally and can be found in the public collections of the Smithsonian, Harvard University, Massachusetts General Hospital and Butler Hospital, as well as myriad private collections.

FIRE FIGHTERS BOWL FOR RESEARCH

This was the fourth year Lt. Ralph Blight and the International Association of Fire Fighters (IAFF) Local 792 in Quincy, Massachusetts, held a fundraiser at Olindy's bowling, with all proceeds benefiting Cure Alzheimer's Fund. Over 100 fire fighters

and supporters took to the candlepin lanes and snacked on pizza and goodies, making for the biggest turnout to date. "We hit it out of the park this year," Blight said of the record-breaking event. Including raffle proceeds, \$8,519 was raised. Thank you!



Heroes Spotlight

Ellen and Patrick Pinschmidt hosted a luncheon in Washington, D.C., and an evening lecture at the Belle Haven Country Club in Alexandria, Virginia, in March. Dr. Rudy Tanzi from Massachusetts General Hospital presented at each event. Ellen is the daughter of Cure Alzheimer's Fund Founder and Co-Chairman Henry McCance. ■ **Alexander Schmidt and Augustus Snyder** cycled the

entire TransAmerica Trail unassisted from Virginia Beach, Virginia, to Astoria, Oregon. This 4,227-mile **Riding for a Remedy** tour from the Atlantic Ocean to the Pacific Ocean was in honor of Alex's grandfather, Lofton "Pop" Baker, and others who have Alzheimer's disease. Cure Alzheimer's Fund was the grateful recipient of all funds raised. ■ For the second year, **Carriage House at Lee's Farm**, a Northbridge Senior

Living Community, hosted a wine and dinner event and auction. CureAlz's proceeds from these initiatives were triple last year's amount.

■ **Jonathan Minkoff** hosted the 17th annual SingStrong International A cappella Festival at Adelphi University in New York. The festival included a silent auction to benefit CureAlz. ■ To all of our Heroes and your supporters, we are grateful. Thank you.

Upcoming Events

Running 4 Answers

Saturday, May 4, 2019, 8:30 a.m.

Roseland, New Jersey

This year marks the 10th annual 5K race and 2-mile fun run to benefit CureAlz. The race has raised more than \$326,000 since its inception. For more details and to register, visit running4answers.org.

J. McLaughlin Sip and Shop

Saturday, May 11, 2019, 1–5 p.m.

Wellesley, Massachusetts

Pick out something special for Mother's Day and 15 percent of your purchase will go to CureAlz.

Morels & Memories— Mushroom Hunt & Alzheimer's Fundraiser

Saturday, May 18, 2019, 12:30–4 p.m.

Swede Lake Road • Watertown, Minnesota

Learn how to identify the elusive morel mushroom, as well as tips and tricks on how to locate, clean and store them, and enjoy a cooking demonstration to sample your harvest. All ages are eligible to forage and win prizes. Proceeds to benefit CureAlz. Go to morelsandmemories.org to register.

Abracadabra!

Saturday, May 18, 2019, 4–6 p.m.

Wellesley, Massachusetts

Magicians from the International Brotherhood of Magicians Ring 122 will entertain the audience with live magic and sleight-of-hand tricks. This is the third year ticket sales from the event have benefited Cure Alzheimer's Fund.

Spike Away Alzheimer's Tournament

Saturday, June 1, 2019

Fowler Park • Cumming, Georgia

Try your luck at this fun volleyball-meets-four-square roundnet competition organized by Noah Luskus, a sophomore at the University of Georgia, in honor of his grandmother, Lynn. It will be a great day of action-packed competition where friends and supporters can come together to raise money for CureAlz. To register, visit CrowdRise.com and search for Spike Away Alzheimer's.

Ice Fantasy Where Cirque Meets Ice

Friday–Sunday, July 26–28, 2019

Mesa Arts Center • Mesa, Arizona

A unique production that showcases gymnastics, acrobatics and figure skating, Ice

Fantasy is choreographed by Pasquale Camerlengo, a two-time national dance champion and Olympic team member as well as choreographer for more than two dozen national, world and Olympic medalists. Larusa Entertainment has pledged a portion of tickets sales to CureAlz. Go to larusaentertainment.com to learn more.

DKJ Golf Tournament

Monday, Aug. 19, 2019

Dracut, Massachusetts

Register early for the perennially sold-out David K. Johnson Foundation Annual Golf Tournament, now in its 19th year. The DKJ Foundation has donated more than \$450,000 to Alzheimer's research and affected families. Visit the dkjfoundation.org to register.

Jog Your Memory 5K Run and 2-Mile Walk

Sunday, Sept. 15, 2019, 9 a.m.

Needham, Massachusetts

Jog Your Memory started out as a community fun run in 2014 by Jess and Bob Rice. This year's event will be the sixth to raise funds for Alzheimer's disease research and care. For more details and to register, visit jogyourmemory5k.org.

News In Brief

Tsai Earns Hans Wigzell's Prize in Medicine

The Hans Wigzell Research Foundation announced that neuroscientist Li-Huei Tsai, Ph.D., Picower Professor and Director of The Picower Institute for Learning and Memory at MIT, is the winner of Hans Wigzell's Prize in Medicine for 2018.

"The prize is given to professor Li-Huei Tsai for her innovative research in trying to understand the etiology and possible treatment of Alzheimer's disease," the foundation said in announcing the \$100,000 prize. "Professor Tsai has in her research made a series of impressive findings with regard to this disease."

Dr. Tsai's work has brought new mechanisms for learning, memory and neurodegeneration to light and suggested new paths for major genetic risk for Alzheimer's disease to immune genes. This includes identifying chromatin modifiers and kinases that regulate brain flexibility and can be targeted to improve cognition in Alzheimer's disease, and discovering that genomic integrity is critical for neuronal protection during both aging and neurodegenerative disease.

"Dr. Tsai is a leader in understanding the molecular pathophysiology of neurological disorders affecting cognition," said Tim Armour, President and CEO of Cure

Alzheimer's Fund. "Her work is a real game changer for research into Alzheimer's disease, and we are honored to have funded her research since 2015."



Accolades for Cure Alzheimer's Fund

"These recognitions underscore the importance of our mission to fund breakthrough research through effective stewardship of donor funds," said Tim Armour, Cure Alzheimer's Fund President and CEO. "We are grateful to be recognized by these organizations and for our work to be discovered by so many they reach."



Forbes features a select charity in each of the 12 days before Christmas, providing charitable inspiration to millions of readers. On the fifth day of its annual **12 Days of Charitable Giving for 2018**, Cure Alzheimer's Fund was lauded for the second time for its sole mission of funding Alzheimer's research and resultant breakthrough achievements that have moved us closer to a cure.



Cure Alzheimer's Fund earned another top ranking from **Goodnet**, an organization that connects people from around the world with opportunities for doing good. Ranked as one of **8 Charities That Give Over 90% of Raised Funds to Their Cause**, CureAlz was rated among the highest in terms of financial health, accountability and transparency.



Charity Navigator, one of the most respected independent charity evaluators, named Cure Alzheimer's Fund in 2018 as one of the **10 Best Medical Research Organizations** in the United States. For eight consecutive years, Charity Navigator has awarded CureAlz a 4-star rating, its highest possible rating—an exceptional designation and testament to the integrity and merit of a nonprofit organization.



The prominent American online media website **Insider** selected Cure Alzheimer's Fund as one of **10 Important Causes and The Best Charity to Donate to for Each** to help find a cure of Alzheimer's.

Wyss-Coray Named to TIME Top Health Care 50

Tony Wyss-Coray, Ph.D., Professor of Neurology and Neurological Sciences at Stanford University, has been named by TIME magazine as one of the 50 Most Influential People in Health Care of 2018 for his work using blood as medicine.

Dr. Wyss-Coray found in the lab that joining the blood of younger mice and older mice improved the cognition of older mice. He co-founded a company, Alkahest, to scientifically test the idea in people with early Alzheimer's. Encouraged by early results, Wyss-Coray now hopes to refine a blood-plasma treatment for aging brains.

Cure Alzheimer's Fund is proud to have supported the work of Dr. Wyss-Coray through research funding since 2015.

TIME launched the Health Care 50 in 2018 to highlight physicians, scientists, and business and political leaders whose work is transforming health care right now. To assemble the first of what is planned to be an annual list, the TIME team of health editors and reporters nominated people who significantly changed the state of U.S. health care in 2018, and then evaluated their work on key factors, including originality, impact and quality.



Financial Update

JANUARY 2019 – FEBRUARY 2019

Numbers shown are preliminary for the period and are rounded to the nearest \$100,000.

	This period	YTD	Inception to Date
Contributions received	\$4.7M	\$4.7M	\$119.5M
Operating expenses paid by the board	\$0.6M	\$0.6M	\$22.8M
Research funded	\$1.8M	\$1.8M	\$88.5M

Research Projects

	Distribution Amount
Gene Expression Throughout Development of Pathology in APPKI Mice; Effects of Human Tau and Aging Frances Edwards, Ph.D., and John Hardy, Ph.D., University College London	\$195,388
Targeting Reactive Astrocytes for Therapeutic Intervention in Alzheimer's Disease Gilbert Gallardo, Ph.D., Washington University School of Medicine	\$150,000
Gut Microbiome-Mediated Shifts in Amyloid Beta Deposition in a Humanized Alzheimer's Disease Mouse Model Deepak Vijaya Kumar, Ph.D., Massachusetts General Hospital	\$250,000
Interactions Among TREM2, APOE and Sex Christian Pike, Ph.D., and Caleb Finch, Ph.D., University of Southern California	\$172,565
Stimulating Proteasome Activity for the Treatment of Alzheimer's Disease Hermann Steller, Ph.D., The Rockefeller University	\$150,000
Molecular and Cellular Mechanisms of ACE1 Variant in Alzheimer's Disease Robert Vassar, Ph.D., Northwestern University	\$250,000
TREM2: Role in Modulating Amyloid Beta and Tau-Related Pathologies and Neurodegeneration Marco Colonna, M.D., and David M. Holtzman, M.D., Washington University School of Medicine	\$345,000
Development and Breeding of Mice Models for Genes to Therapies Research Projects Taconic	\$236,521

DONATE YOUR BIRTHDAY!

MAKE YOUR BIG DAY EVEN MORE MEANINGFUL BY ASKING FRIENDS AND FAMILY TO DONATE TO CURE ALZHEIMER'S FUND TO CELEBRATE YOUR BIRTHDAY.

1. Creating a personal fundraiser is as simple as **adding a donate button** to your Facebook page.
2. Simply **click on Fundraisers** on your news feed to the left, then **click on the Raise Money** blue button in the middle of the page.
3. Next, **click on Nonprofits** to search and type in **Alzheimer's Disease Research Foundation dba Cure Alzheimer's Fund.**

No amount is too small.
We are happy to receive donations of any size.

DONATE! 100 PERCENT OF EVERY DOLLAR RAISED WILL FUND VITAL RESEARCH INTO ALZHEIMER'S DISEASE.



MISSION:

Fund research with the highest probability of preventing, slowing or reversing Alzheimer's disease.

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SPRING SEASON 2019

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