



# Successful Aging

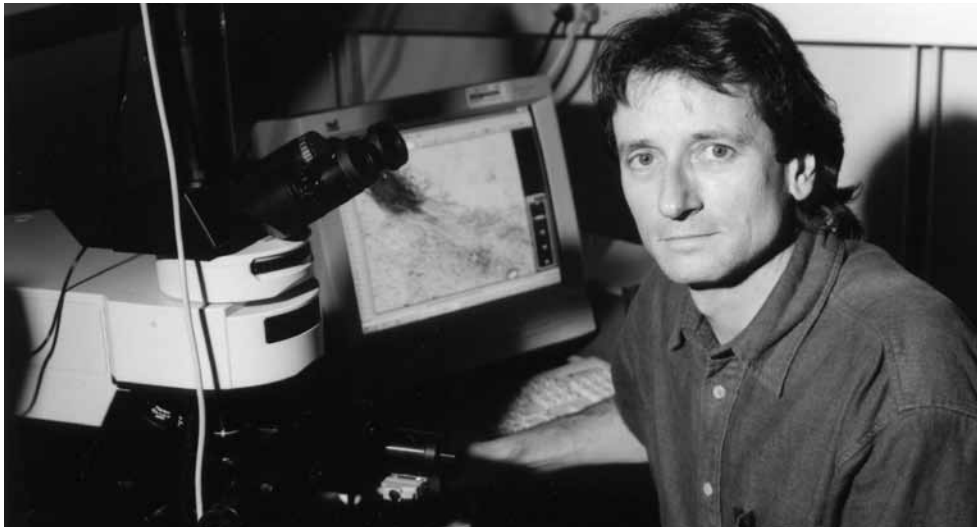
Stein Institute for Research on Aging

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ONLINE AT [HTTP://AGING.UCSD.EDU](http://AGING.UCSD.EDU)



Dr. Mark Tuszynski, professor of neurosciences at the UC San Diego School of Medicine

## Growth Factor Protects Key Brain Cells in Alzheimer's Models

BY DEBRA KAIN

*A UC San Diego study on animals may pave the way for a novel approach to treating Alzheimer's disease.*

Memory loss, cognitive impairment, brain-cell degeneration, and cell death were prevented or reversed in several animal models after treatment with a naturally occurring protein called brain-derived neurotrophic factor (BDNF). The study by a University of California, San Diego–led team—published in the February 8, 2009, issue of *Nature Medicine*—shows that BDNF treatment can potentially provide long-lasting protection by slowing, or even stopping, the progression of Alzheimer's disease in animal models.

"The effects of BDNF were potent," said Mark Tuszynski, M.D., Ph.D., professor

of neurosciences at the UC San Diego School of Medicine, neurologist at the VA San Diego Healthcare System, and Stein Institute affiliated faculty member. "When we administered BDNF to memory circuits in the brain, we directly stimulated their activity and prevented cell death from the underlying disease."

BDNF is normally produced throughout life in the entorhinal cortex, a portion of the brain that supports memory. Its production decreases in the presence of Alzheimer's disease. For these experiments, the researchers injected the BDNF gene or protein in a series of cell culture and animal models, including transgenic mouse models of Alzheimer's disease, aged rats, rats with induced damage to the entorhinal cortex,

*continued on page 2*

### FREE PUBLIC LECTURE

#### MARCH

##### **Mantram Repetition: A Portable Stress Buster**

Jill Bormann, Ph.D., R.N.  
Research Nurse Scientist  
VA San Diego Healthcare System  
UCSD Volunteer Associate Clinical Professor  
Adjunct Associate Research Professor—  
SDSU School of Nursing

March 18, 2009, 5:30 p.m.  
Garren Auditorium  
Basic Science Building  
University of California, San Diego

#### APRIL

##### **How to Keep Mobility: Advancements in Minimally Invasive Joint and Cartilage Surgery**

Daniel Lee, D.P.M.  
UCSD Assistant Clinical Professor,  
Orthopaedic Surgery

April 15, 2009, 5:30 p.m.  
Garren Auditorium  
Basic Science Building  
University of California, San Diego

*Free parking is available.*

##### *Directions:*

From Interstate 5 North or South:

- Exit La Jolla Village Drive West
- Right on Villa La Jolla Drive
- Left on Gilman Drive
- Left into Parking Lot 602 (first stop sign)
- From parking lot, walk toward Medical Teaching Facility (MTF)
- Right through MTF and enter Basic Science Building through glass doors
- Left down first hallway

*Please see page 2 for a summary of March's presentation.*

## Alzheimer's

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aged rhesus monkeys, and monkeys with entorhinal cortex damage.

In each case, when compared with control groups not treated with BDNF, the treated animals demonstrated significant improvement in the performance of a variety of learning and memory tests. Notably, the brains of the treated animals also exhibited restored BDNF gene expression, enhanced cell size, improved cell signaling, and activation of function in neurons that would otherwise have degenerated, compared to untreated animals. These benefits extended to the degenerating hippocampus, one of the first regions of the brain to suffer damage in Alzheimer's disease, and where short-term memory is processed.

The team concludes that the demonstration of the effectiveness and safety of

***BDNF treatment can potentially provide long-lasting protection by slowing, or even stopping, disease progression in the cortical regions that receive treatment.***

BDNF administration in animals provides "a rationale for exploring clinical translation" to humans, suggesting that the protective and restorative effects of BDNF on damaged neurons and neuronal signaling may offer a new approach to treating Alzheimer's disease.

This work builds on previous studies by Tuszynski and others, demonstrating the therapeutic affects of nerve growth factor (NGF) administered to patients with Alzheimer's disease.

In 2001, Tuszynski and his team at UC San Diego Medical Center performed the first surgical implants of NGF genes into the brains of Alzheimer's patients, with follow-up results showing that these patients experienced a possible slowing in cognitive decline and increased metabolic function in the brain. The NGF studies continue today, with Phase 2, multicenter studies currently under way.

"NGF therapy aims to stimulate the function of specific cholinergic neurons, which

are like the air traffic controllers of the brain, helping to direct the activities of cells in broad regions of the brain," Tuszynski explained. However, he added that the benefits of NGF therapy, if validated in ongoing trials, will not be curative. Eventually, the effect of the NGF "boost" will be countered by the widespread death of neurons in the cerebral cortex as a result of advancing Alzheimer's disease.

"In contrast, BDNF acts directly on dying cells in specific memory circuits of the brain," Tuszynski said. "In this series of studies, we have shown that BDNF targets the cortical cells themselves, preventing their death, stimulating their function, and improving learning and memory. Thus, BDNF treatment can potentially provide long-lasting protection by slowing, or even stopping disease progression in the cortical regions that receive treatment."

The protective and restorative effects of BDNF occurred independently of the build-up of amyloid, a protein that accumulates in the brain to form plaques in Alzheimer's disease. Many current experimental

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## Free Public Lecture

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MANTRAM REPETITION:  
A PORTABLE STRESS BUSTER

### What is a mantra?

*Mantram* is the Sanskrit term for a short sacred word or phrase found in nearly every culture and tradition. In the West, it is commonly called a holy name and in the East, a mantra. It is to be repeated silently in the mind, over and over, throughout the day or night, to serve as a rapid focus tool for slowing down and developing one-pointed attention.

The intervention that is the focus of Dr. Bormann's research originates from the work of Eknath Easwaran, a spiritual teacher who founded the Blue Mountain Center of Meditation.

Dr. Bormann has a keen interest in the relationship between spirituality and health. She conducts research on the



*Jill Bormann, Ph.D., R.N.*

benefits of mantram repetition— a spiritually based practice of training attention—for various groups, including veterans with chronic illness, health-care employees, adults with HIV, veterans with post-traumatic stress disorder (PTSD), family caregivers of veterans with dementia, and childbearing women in labor.

Results of her research provide evidence that mantram repetition is a portable stress buster that can be easily integrated

into one's life to aid in training attention and calming the body and mind.

### Biography

Jill Bormann, Ph.D., R.N., is a research scientist and clinical nurse specialist in adult psychiatric-mental health nursing at the VA San Diego Healthcare System. She is also an adjunct associate professor at San Diego State University School of Nursing and a voluntary associate clinical professor at the UC San Diego School of Medicine, Department of Family and Preventive Medicine.

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# Exuberance

BY NATASHA JOSEFOWITZ, PH.D.

*We all live somewhere between depression and exuberance. Just under exuberant is happiness, then a bit lower is satisfaction, then we get to “just treading water” kind of waiting for something to happen. Under that, there is dissatisfaction, then unhappiness, and finally depression. So, our scale (which I just made up) goes from one (depression) to seven (exuberance).*



Natasha Josefowitz, Ph.D.

Where do you place yourself in the morning as you wake up? Do you jump out of bed and look forward to your day, or do you groan and pull the covers up

tighter? Where are you on the scale after breakfast, at midday, in the evening? Do you see yourself going up on the scale as the day goes by, or going down?

Of course it depends a lot on the activities of the day. Some days are just more fun and others are necessary drudgery. But studies have shown that we have a pretty consistent happiness gauge, and some of us manage to be in the same spot on the scale no matter what goes on in our day or in our lives. In other words, we are born with a happiness thermostat—an emotional profile that changes little, whether we are winning the state lottery or losing a spouse. After the initial euphoria of winning or the grieving of losing, most people return to their original emotional state.

Seldom do we, as adults, become exuberant. We did as children. I remember how much I looked forward to going for an ice cream at the corner drugstore or how wonderful it was to go to a Saturday matinee with my friends. Children are exuberant; they jump up and down and clap their hands. Puppies and kittens can also be exuberant. When I tell my dog, Molly, that we're going for a walk, she starts running

around and jumping, hardly able to contain her excitement. Molly is exuberant.

Do we become jaded, so that the ice cream is on the radar only as extra calories and the afternoon movie interferes with the work to be done? What still excites us?

I look forward to a lot of things and can muster a lot of happiness for seeing my children and grandchildren, or going to a really good movie or play, or going out with friends. But mostly I sit on the scale between happiness and satisfaction, often dipping into the “treading water” level and once in a while into dissatisfaction. All this is normal, and I should be thrilled that this is where I situate myself. But I miss exuberance—I miss passion.

Exuberance is a more energetic, creative, excited version of happiness. There is a feeling that everything is possible, there is joy in the moment. The usual hang-ups have disappeared: One is confident in one's capacities and abilities and takes risks in a safe environment and feels rewarded.

If not exuberance, how about happiness? This is easier to achieve on a regular basis. Stop and consider the last time you felt exuberant or happy about anything. What was it and how did it come about? Can you repeat this experience? Can you factor it in to your daily life, or at least on weekends?

I tried to do this exercise myself and came up with the feelings I get when I have written a good article; that one might do it for satisfaction. I got a phone call that a friend is quite ill, and I was unhappy; if it were a family member, I would have been depressed. But both of these feelings are temporary until some other event replaces them. The prospect of a walk on the beach would make me happy, yet while walking there, seeing a glorious sunset, I could become exuberant. Music also affects moods; it raises levels of the brain chemical dopamine, which can induce euphoria.

So, listen to music, walk on the beach, go out with friends, see a good movie, read a book, dance, play, have fun, and be exuberant!



## PUBLIC LECTURE SERIES

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Cox Digital Ch. 135  
Time Warner Digital Ch. 135  
(throughout San Diego)  
Time Warner North County Ch. 18  
(until April 2009)  
AT&T UVerse, Ch. 99  
UHF (no cable) Ch. 35

### The Inconstant Brain: Imaging Reveals Surprising Dynamic Change in Structure Across the Lifespan

New MR imaging studies of healthy individuals revealed an unsuspected degree of dynamic change in brain tissues that suggest neuroadaptive alterations in response to pathogens, drugs, and even experience. Terry Jernigan, Ph.D., UCSD Professor of Psychiatry reviews recent MR imaging results and future research directions, with emphasis on plasticity in brain maturation and brain aging.

Mar. 12 9:00 p.m.  
Mar. 13 10:00 p.m.  
Mar. 15 5:00 p.m.  
Mar. 17 7:00 p.m.

### Research on Aging: The Impact of Exercise on Cognitive Functioning

Strong evidence suggests physical activity and maintaining involvement in cognitively stimulating activities buttress cognition as we age. Join Amy Jak, Ph.D., UCSD School of Medicine, as she explores how this phenomenon happens.

Mar. 26 9:00 p.m.  
Mar. 27 11:00 p.m.  
Mar. 29 5:00 p.m.  
Mar. 31 7:00 p.m.

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For additional information on viewing past lectures online or for any other questions, please visit our Web site at <http://aging.ucsd.edu> or call (858) 534-6299.



## Honor Roll of Stein Institute for Research on Aging Contributors

We would like to express our deep appreciation for all those listed, as well as the anonymous donors, who chose to provide support to the Sam and Rose Stein Institute for Research on Aging during the months of December through mid-February 2009.



## How to Find the Right Attorney

*Sometimes people drag their feet in creating or updating their will because they don't know where to go to get good legal help. The fact that the phone book lists the names of various lawyers is no help. These are simply strangers—names and numbers with no personal connection. What can be done to overcome these barriers?*

It is important to locate an attorney who specializes in estate planning. If you have a cavity and need dental care, you wouldn't go to a foot doctor. You would go to someone specializing in teeth: a dentist. The same is true regarding a will and other estate-planning documents. You want someone who is skilled in this area, someone who knows the right questions to ask, and someone who is current with tax laws and document requirements.

The staff of the UC San Diego Office of Planned Giving may know the kind of attorney you need to help you with estate-planning matters. And, what's more, they will help you find someone you can feel good about.

**The important thing is for you to be comfortable with the attorney and have confidence in his or her professional expertise.**

In helping you, however, the staff will not recommend one attorney and say, "This is the one for you. Go to this attorney." They will serve as a guide and facilitator to help you find someone you like. They may provide you a list of names to call

with questions regarding services and rates. It is important for you to be comfortable with the attorney and have confidence in his or her professional expertise.

In addition, you may want to speak with your closest friends about their attorney resources. Perhaps they could refer you to someone you would like. Or, if you have a long-term relationship with a professional advisor like a CPA or a financial planner, he or she may be able to provide a recommendation.

In any case, it is a good idea to have a short visit with any attorney you don't know before you engage him or her as your legal advisor. Take the opportunity to learn about his or her services and see whether you feel comfortable with the person. By the way, there should be no charges for this initial visit.

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# Meet This Month's Successful Ager—John Paul Jones

BY MELANIE COLLINS

*John Paul Jones's mother once explained to him how his parents chose his unique name. "There's not a lot you can do with the name Jones," she told him, "May as well prop it up!"*

John Paul was born in Youngstown, Ohio, in May 1914 and lived there until he went to college. He had a delightful family life, and he recalls having a great time with friends in his teenage years in the era before television and other passive forms of entertainment. He says he and his friends "created our own fun" by gathering at one another's homes to play games and to share talents such as singing and playing instruments.

Like other families, John Paul's family lost all savings and investments in the stock-market crash, which made the 1930s a very challenging time. John Paul was still able to attend his father's alma mater, Princeton University, by getting a scholarship and working to help cover school costs. He graduated in 1936 with honors and a degree in political science.

John Paul wanted to pursue a career in journalism. He tried to get hired by the *Baltimore Sun*, but jobs were hard to find everywhere and there were no openings at the newspaper. He returned home and found an entry-level position in the labor department of Youngstown Sheet and Tube Company. He worked his way up to management, then to top executive positions in what would now be called human resources (personnel, industrial relations, safety, management training, and public relations). During his career he worked for Carnegie-Illinois Steel Corporation, Standard Oil Company of Ohio, and the Clevite Corporation (a manufacturer of automobile parts). When he worked for Standard Oil Company of Ohio, he was sent to Tehran, Iran, to work with the Iranian Oil Operating Company. His wife and three children

joined him, and the entire family spent two years there enjoying the Iranian culture.

After John Paul retired, he and his wife moved to La Jolla in 1970. The weather suited their active lifestyle, and they participated in tennis, golf, and swimming for many years.

His wife died in 1986, and the next few years were very difficult for John Paul. His local relatives—his sister and daughter—helped him through that challenging time by maintaining frequent contact; he also received support from close friends. He couldn't find the motiva-

tion to take good care of his health in the early years after losing his wife, but now he has a friend and companion who helps him stay motivated to eat healthful foods, to take vitamins and supplements, and to practice other good habits.

John Paul has always been an athlete. He played football on a division championship team throughout high school, and he continued to play football at Princeton. Although at age ninety-five he can no longer participate in his usual sports (tennis, golf, and swimming), he follows his physical therapist's prescription of a daily exercise regimen for strength and balance. He also walks fifteen minutes every day. He uses a



John Paul Jones

cane to enhance the safety and effectiveness of his walking routine, and recently he discovered the use of trekking poles for this purpose. For the past year, he has been getting massages once a week, and he believes this has been a helpful addition to his health program.

For social support, John Paul maintains regular contact with his local relatives and hears often from his sons, who live near the East Coast. He plays English billiards every week with a friend and enjoys seeing other friends regularly.

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## Do You Know Someone Who Is a Great Example of Successful Aging?

Each month we feature examples of successful aging within our local community. We welcome your nominations. If you know of someone eighty-five years or older who you feel is an example of successful aging, please contact Jody DeLaPena-Murphy at (858) 822-1132 or [jodelapena@ucsd.edu](mailto:jodelapena@ucsd.edu) with the name and contact information of the person you would like to nominate, along with a brief description of why you feel he or she is successfully aging. From these nominations, we will select some of these individuals to be interviewed, and their responses will be included in future editions of the newsletter!

## Did You Know?

In the 2008 *U.S. News & World Report* rankings, UC San Diego is recognized as the **7th best public university** in the nation and in the **top 35** of all private and public universities.

The UC San Diego Medical Center—ranked among the nation’s best in eight specialties—admits more than **21,000 inpatients** and serves **476,000 outpatients** per year. The Medical Center invests \$800 million annually in the local economy through purchasing and payroll.

Exciting partnerships occur with other research centers near the UCSD campus, such as the **San Diego Consortium for Regenerative Medicine**, a collaboration between UC San Diego, the Burnham Institute for Medical Research, the Salk Institute for Biological Studies, and The Scripps Research Institute.

The UC San Diego Medical Center and School of Medicine together contribute **\$420 million** each year to the local economy in the form of health and medical research.

## UC San Diego Celebrates Diversity and Service with Awards

The UC San Diego Senior Behavioral Health Unit was recognized for its contribution to diversity and equal opportunity at UC San Diego and beyond at the 2008 Equal Opportunity/Affirmative Action and Diversity Awards ceremony on February 10.

The awards recognize individuals, departments, and organizational units that have made outstanding contributions in support of UCSD’s commitment to diversity.

A review committee composed of representatives from each vice chancellor area evaluated the nominations and recommended the recipients for approval by Chancellor Marye Anne Fox. The ceremony was attended by the UCSD community, including faculty, staff, and students.

Congratulations to our friends at Senior Behavioral Health!

### *Successful Ager*

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In addition to billiards, John Paul’s other recreational pursuits include learning how to play the guitar, flying a remote-controlled model helicopter, and enjoying his electric train set. Before the guitar lessons, he took singing lessons. For his ninetieth birthday party, he entertained his guests by compiling and singing a medley of familiar songs, including advertisement jingles from the 1920s to the recent past.

John Paul’s health habits also include the practice of certain beliefs and attitudes. He took to heart the advice his dean at Princeton gave him during college: Know the

score, educate yourself about what’s going on in the world, but don’t become a cynic. He also believes that “we are put on this earth to help other people.” He practices gratitude for all the things he can still do, which helps him adjust to the changes and losses that come with aging. He believes in staying involved in his interests and finding new things to be involved in (such as the guitar lessons).

Age may have slowed him down a little and required him to make mental and physical adjustments, but John Paul is as busy as ever living his life to the fullest. In his words, “I have so many things to do . . . my in-box is overflowing.”

### Research Participants Needed

Dr. Colin Depp, Stein Institute for Research on Aging (SIRA) faculty member and researcher at UC San Diego, is seeking participants at least sixty years of age to take part in a study to understand the daily experiences, activities, and associated emotions in older adults. Using a diary method known as the Day Reconstruction Method, participants will be asked to recall the previous day’s events and answer a series of questions about their experiences that day. The majority of the assessment is self-administered and can be completed at home. If you are interested in participating or have additional questions, please call Ashley Cain at (858) 822-7485.



## Save a tree—sign up to receive your Stein Institute’s Successful Aging newsletter electronically

In keeping with UCSD’s efforts to become a green campus, the Stein Institute for Research on Aging will reduce paper usage by distributing the newsletter electronically to as many of our readers as possible. If you would like to receive the newsletter via e-mail rather than receiving a paper copy, please visit the newsletter sign-up page on our Web site at <http://aging.ucsd.edu/newslettersubscription.php> or send us an e-mail at [steininstitute@ucsd.edu](mailto:steininstitute@ucsd.edu) and include your postal address as well as your e-mail address to ensure that you do not receive duplicate copies. Please be assured that your information will not be shared with any other institution.

## 2009 Public Lecture Series

We would like to invite you to attend our 2009 Public Lecture Series. This series allows affiliated faculty members of the Stein Institute for Research on Aging, other scientists from the UCSD School of Medicine, and individuals from surrounding academic and research institutions to present the latest findings in their respective fields of expertise and to share their present work with the general community. All of these lectures focus on topics related to healthy aging or age-related diseases. The lectures are held in the Garren Auditorium on the UCSD School of Medicine Campus from 5:30 to 6:30 p.m. If you have any questions, contact us at (858) 534-6299.

### March 18

**Jill Borman, Ph.D., R.N.**  
“Mantram Repetition: A Portable Stress Buster”

### April 15

**Daniel Lee, D.P.M.**  
“How to Strengthen Osteoporotic Bones Without Surgery”

### May 20

**Robert Terkeltaub, M.D.**  
“Gout: A Growing Public Health Problem Intimately Linked with Aging”

### June 17

**Colin Depp, Ph.D.**  
“Aging and Wellness”

### July 15

**Charles von Gunton, M.D.**  
“The Future of Palliative Medicine”

### August 19

**William Kremen, Ph.D.**  
TBD

### September 16

**J. Kellogg Parsons, M.D.**  
“Prostate Cancer—Research Update”

### October 21

**Elizabeth Barrett-Connor, M.D.**  
TBD

### November 18

**Michael Albo, M.D.**  
“Urinary Incontinence”



## Attorney

*continued from page 4*

Finding the right attorney may take a little extra effort, but you will be glad you spent the time, especially when you sit down and share confidential information about your assets and your distribution wishes.

If you are just getting started with your estate plans or need any further gift planning information, the UC San Diego Office of Planned Giving is prepared to provide confidential assistance. Please contact Geoff Graham, Director, Planned Giving, at (858) 822-6619 or visit our Web site at [www.plannedgiving.ucsd.edu](http://www.plannedgiving.ucsd.edu).

If you have already planned your estate and made arrangements for the Sam and Rose Stein Institute for Research on Aging (SIRA) at UC San Diego, let us know. We would like to acknowledge you as a member of our UCSD Legacy Society.

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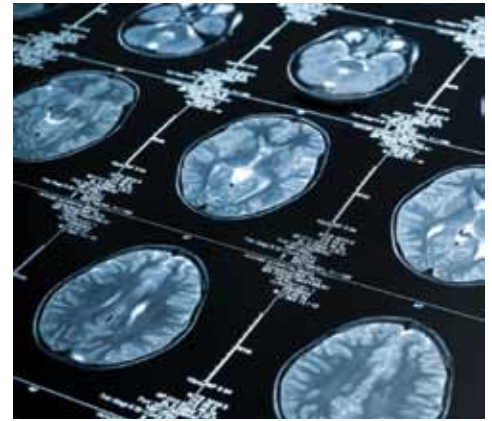
## Alzheimer's

*continued from page 2*

treatments for Alzheimer's disease target amyloid production, so the potential role of BDNF as an alternative protective intervention is of great potential interest, said Tuszynski. Because BDNF targets a different set of disease mechanisms than amyloid modulation, there is also potential to combine BDNF and amyloid-based treatments, theoretically providing a two-pronged attack on the disease.

The study was supported by the National Institutes of Health, the California Regional Primate Research Center, the Veterans Administration, the Alzheimer's Association, the State of California, the Dr. Miriam and Sheldon G. Adelson Medical Research Foundation, and the Shiley Family Foundation. Tuszynski is scientific founder of Trophin Therapeutics, a company that may potentially benefit from the research results.

Study coauthors are Alan H. Nagahura, David A. Merrill, Shingo Tsukada, Brock E.



Schroeder, Gideon M. Shaked, Ling Want, Armin Blesch, James M. Conner, Edward Rockenstein, Edward H. Koo, and Eliezer Masliah of the UC San Diego Department of Neurosciences; Andrea A. Chiba of the UC San Diego Departments of Neurosciences and Cognitive Science; Giovanni Coppola and Daniel Geschwind of the Program in Neurogenetics, Department of Neurology at UCLA; and Albert Kim and Moses V. Chao, Skirball Institute of Biomolecular Medicine at New York University School of Medicine.

**For clinical trials at UCSD:** <http://health.ucsd.edu/clinicaltrials/>

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