

Claude Freeman's

Alzheimer's Research Summary
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Alzheimer's Research Review Spring 2005

Duke University Researcher Explores Cell-To-Cell Communication: Michael D. Ehlers, PhD., at Duke University has gained prominence for his specialized studies involving the way in which nerve cells communicate.

And as is often said, "communication is the key to understanding." This saying is true for Alzheimer's disease because a significant amount of Alzheimer's-associated memory loss involves abnormal communications between nerve cells in the hippocampus, a brain region dedicated to memory formation.

While it is widely known that amyloid beta fragments are involved in the breakdown in synaptic signaling, the mechanism involved is poorly understood. Dr. Ehlers believes that a key to explaining the process lies in glutamate, a chemical messenger that assists cell-to-cell communication.

Glutamate is an important neurotransmitter that is found in more than half of the synapses within the brain. It is sent from one nerve cell to be received by a target nerve cell, where it attaches to molecular switches known as receptors.

The brain is adept at establishing preferred neural pathways. It does this by either increasing or decreasing the number of neurotransmitter receptors. The number of receptors can be reduced by a process called endocytosis, in which a receptor is drawn into the interior of the cell where it is recycled or destroyed.

Ehlers discovered that amyloid beta protein is involved in activating endocytosis molecules. This leads to the loss of glutamate receptors on nerve cells within the area of the brain responsible for memory. Ehlers will use this preliminary data to gain further insight into the fundamental cellular and biological mechanisms behind Alzheimer's disease.

The ultimate goal is to find a new therapeutic approach that will be safer to use and more effective than those already approved by the FDA. Those drugs work by influencing the level of neurotransmitters in the brain. At best, they can slow the progression of the symptoms of Alzheimer's disease while not treating its underlying cause, and they do have a number of adverse side effects.

For instance Namenda may be responsible for killing nerve cells. Even more troubling than the death of nerve cell is recent news that two clinical trials of Reminyl, being tested as a treatment for mild cognitive impairment, were discontinued because three times as many deaths occurred among those taking that drug than a placebo. This is one of five drugs currently used in treating Alzheimer's disease.

The underlying risk associated with FDA approved drugs that influence neurotransmitter levels is that increasing them could create toxic levels and decreasing them could deprive the body of a chemical that is necessary for sound health.

On January 21, 2005, Johnson & Johnson announced that it is discontinuing two tests of its drug Reminyl as a treatment for mild cognitive impairment after those taking it experienced three times the number of deaths compared to individuals taking a placebo. The drug was already approved for treating Alzheimer's disease; the data from these latest clinical trial will be reviewed by the FDA.

Other reported activity;

According to findings presented on December 13, 2004 at the American College of Neuropsychopharmacology annual meeting, a smell test of ten odors was effective at identifying those with minimal to mild cognitive impairment that would progress to Alzheimer's disease. The odors used included leather, lemons, lilac, pineapple and strawberry. The test worked much better as a predictive tool than atrophy in the area of the brain that is responsible for memory.

Alzheimer's Disease Might be Reversible:

In the February 2005 Journal of Clinical Investigation it is reported mice given an antibody made from amyloid beta experienced a clearing away of plaques that are a hallmark of Alzheimer's disease. In addition, nerve cells in their brain began a rapid process of recovery. The damage that plaques cause to brain cells has been thought to be irreversible. Now scientists are proving that the brain has a considerable capacity for healing.

Researchers are now exploring immunotherapy methods such as passive immunization, which uses already formed antibodies opposed to stimulating the body to create its own, hoping this will prove safer than the previously used amyloid beta vaccine.

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It was not long ago that the only sure way to identify Alzheimer's disease was to perform an autopsy upon a person's death. However, new imaging devices used on living patients are now capable of identifying the same hallmarks of Alzheimer's disease, providing for an earlier and more accurate diagnosis.

This breakthrough has been made possible through the development of chemical tracers that attach to amyloid plaques and neurofibrillary tangles in the brains of Alzheimer's patients. These connections can be viewed with the aid of Positron Emission Tomography(PET).

While PET scan has proven useful for several years as an aid to visualize and quantify amyloid accumulation in patients with Alzheimer's disease, the development of genetic markers for amyloid beta has greatly enhanced its ability as a diagnostic tool.

One of these tracer compounds was developed at the University of Pittsburgh, therefore it is called Pittsburgh Compound-B(PIB). It concentrates on the clumps of protein known as amyloid plaques. Researchers in California developed a detection technique using another compound, known as {18F} FDNNP, that is able to detect abnormal accumulations of tau as well as amyloid plaques.

It is unclear which marker does the best job overall. Research in the Netherlands will evaluate which tracer is most suitable for imaging of amyloid accumulation within the living body. The value of those tracers in the early diagnosis of Alzheimer's disease will be determined. The findings will be especially significant for those who are at risk of developing Alzheimer's disease since these individuals could be treated with anti-amyloid drugs to prevent or slow down nerve damage due to Alzheimer's disease.

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Memantine(Me-Man-teen), sold under the name of Namenda, is the first drug approved in the United States and Europe for the treatment of moderate-to-severe Alzheimer's disease and the first drug to slow the progression of the disease.

Part of the disease process in Alzheimer's disease is the over stimulation of nerve cells, or neurons, in the brain by a messenger chemical, or neurotransmitter, called glutamate, which is an amino acid that is prevalent in protein. In the brain, glutamate is the main neurotransmitter that excites neurons, particularly neurons that are involved in learning and memory. When something important happens in the environment, some neurons release large amounts of glutamate, which stimulate other neurons involved in learning and memory. In this way, the brain notes the important event and makes a memory of it.

The problem in Alzheimer's disease is that there are constant low levels of glutamate floating around in the brain, continuously stimulating neurons, even when nothing notable is happening outside the body. This creates a lot of noise in the brain's learning system, such that when something important happens, the neuronal signals noting this get buried in the noise.

This is apparently why Alzheimer's patients have trouble learning new facts and remembering old ones. Their brains are just too "noisy" to function properly.

To make matters worse, all this glutamate stimulation increases the amount of calcium inside neurons. Some calcium is needed for normal neuronal function and memory formation, but too much calcium sets into motion processes that end in the destruction of the neuron. This is partly why large sections of the brain die off in Alzheimer's disease. Memantine works by blocking the constant stimulation of neurons by low levels of glutamate. This dampens down the noise in the system and prevents excess calcium from accumulating inside neurons. Now when something important happens and some neurons release high levels of glutamate, neurons receiving the glutamate signal can detect it. No longer does the signal get lost in the noise. As a result, the brain of Alzheimer's patients can function more normally.

In clinical trials of memantine for treating Alzheimer's disease, the drug was shown to reduce declines in mental functioning, improve behavior (for example, reduce agitation), and reduce the burden on caregivers.

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It was reported in the April 26 issue of the Journal of Neuroscience by Dr. Gunnar Gouras the discovery that Alzheimer's disease may have its beginnings in the trafficking structures that exist within brain cells, "opens a new window on the causes of Alzheimer's disease".

What makes these findings so startling is the fact that many in the research community were not aware of just how early in the process neurological decline, due to Alzheimer's disease, can begin.

"Our work is showing that, long before this extra cellular phenomenon occurs, beta-amyloid is building up inside neurons-specifically, on intracellular trafficking structures called multivesicular bodies," explains Dr. Gouras.

In basic terminology, this finding shows that Alzheimer's disease may have its beginnings in the trafficking structures that exist within brain cells.

Experts have known for some time that a buildup of beta-amyloid protein "plaques" around and between neurons is a common indicator of Alzheimer's disease. Now it seems that neurological problems may begin much earlier than previously thought.

Says DR. Gouras, "The brain cell isn't killed, but it is impaired in its function. And all of this occurs long before we see any evidence of plaque buildup outside the cell."

Once the researchers were aware of the abnormal buildup of beta-amyloid within the brain cell, that were eager to learn how it impaired nerve cell functioning.

They found that multivesicular impairment seems to "gum up the works" when it comes to an important trafficking mechanism called the ubiquitin-proteasome system. This disruption within the ubiquitin-proteasome system impacts the cell's ability to internalize nutrients.

According to DR. Gouras this research provides us with "new targets that researchers might focus on to help prevent it in its earliest stages." (Meaning: prevent Alzheimer's in its earliest stages.)

Des Moines Register 6-13-06 Vaccine shows promise in fighting Alzheimer's:
An experimental vaccine is showing promise against Alzheimer's disease, reducing brain deposits that are blamed for the disorder. Tests of the DNA-based vaccine are under way in monkeys, and if those are successful, testing in people could begin, perhaps within three years,

said lead researcher Yoh Matsumoto of the Tokyo Metropolitan Institute for Neuroscience in Japan. If all goes well, this type of treatment might be available for people in six or seven years, he said.

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What causes Alzheimer's disease?

There are a number of factors, but one, age, overrides all others. Alzheimer's disease usually begins after age 60 and the risk increases with age. Younger people, in their 40s and 50s, may get Alzheimer's disease, it is much less common.

Approximately 5 percent of Americans between the ages of 65 to 74, and almost half of those 85 and older suffer from Alzheimer's disease.

We also know that family history or genetics plays a role. Early onset Alzheimer's disease-a rare form of the disease that can occur very young(between 30 and 60 years old) is inherited.

Other factors-including diet, exercise, environment, and even the health of your heart may also influence the development of Alzheimer's disease.

How do physicians diagnose Alzheimer's disease?

The only definitive way to diagnose Alzheimer's disease is through an autopsy which can "see" the plaques and tangles in brain tissue.

However, doctors can diagnose the disease correctly 90% of the time by:

- *Learning about a patient's past medical problems and general health;
- *Conducting tests to measure memory and problem solving;
- *Blood, urine and spinal fluid tests;
- *Brain scans.

How is Alzheimer's disease treated?

Currently there is no way to stop the progress of the disease; a number of drugs have been developed that may help prevent the worsening of symptoms, particularly in the early stages of the disease.

There is a possibility diet and exercising the body and the brain will slow the progress.

What does the future hold?

With each passing year, scientists are learning more about how certain foods, physical exercise, and even such simple solutions as crossword puzzles and reading can help keep the brain healthy and stave off Alzheimer's disease.

Why is finding a cure so critical?

Today, more than 4.5 million Americans have Alzheimer's disease, a condition which not only affects the patient but loved ones and caregivers as well. It is estimated that by 2050, the number of Americans with the disease could reach 13.2 million.

U.S. News & World Report December 11, 2006 article entitled Alzheimer's Today has an insert therein entitled There's Hope in the Drug Pipeline where the following is related: No one is truly happy with the current crop of drugs approved in the United States for the treatment of Alzheimer's. Their names- Aricept, Cognex, Exelon, Razadyne, and Namenda-are familiar to anyone who cares for a dementia patient. "What all these drugs have in common is they act on the symptoms, not the underlying disease," says John Morris, director of the Alzheimer's Disease Research Center at Washington University in St. Louis. They boost chemicals that help the brain form memories, but "they don't help a lot." However, there are a few new classes of drugs attempting to tackle the disease head-on. "They could make a big difference," says Morris.

All of them are in the very early stages of development:

Secretase modulators. Most scientists now agree that rotten lumps of proteins called beta amyloid kill off cells in the brains of Alzheimer's patients. So the goal of this type of drug is to prevent the protein from forming by attacking the chemical that creates it, a class of enzyme called secretases.

Secretase inhibitors have been shown to reduce amyloid in mouse brains and have proved safe in early human tests.

Immunotherapy. The idea here is to create antibodies that attach to beta amyloid and help destroy it. These antibodies can be given directly to the patient, like a drug. Again, animal studies have shown that the therapy works, and early human tests indicate it is safe.

Combo action. A compound called huperzine A seems to combine some memory-saving effects of drugs like Aricept and Nemenda with an ability to protect neurons from beta amyloid. It's currently being tested for safety and effectiveness in people. By Josh Fischman.

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The organs that serve as our windows to the world may, in effect, be two-way mirrors, according to breakthrough findings by Dr. Lee Goldstein, M.D., Ph.D., whose research has shown that the human eye provides an unexpectedly clear view of Alzheimer's disease from its earliest stages.

"The (ocular) lens provides an almost perfect molecular window from which to view the Alzheimer's disease process as it unfolds," says Dr. Goldstein. "The advantage here is that we can use the lens to detect and follow the disease process earlier, faster, cheaper and easier than we can in the brain."

Goldstein was working on a completely different project when he noticed something strange about mice with Alzheimer's disease.

"The Alzheimer's disease mice had very unusual cataracts in both left and right eyes," he recalls, "at an age when mice don't normally have cataracts of any kind. Normal sibling mice of the same age did not have the cataracts." This was a particularly unusual finding. When other mice were checked, the same pattern was found—distinctive cataracts in Alzheimer's mice, clear lenses in normal mice.

In addition, Dr. Goldstein and his team discovered that these unusual cataracts were made up of the same protein that was gumming up the brains of Alzheimer's patients—the legendary AB, or Alzheimer B-amyloid.."

Scientists have known for some time that systemic diseases can register in the eyes before they register anywhere else.

According to Dr. Goldstein, the same is true for Alzheimer's disease, which can remain "silent" in the brain even as it's manifesting in other parts of the body.

Dr. Goldstein is devising a quick, painless and completely safe diagnostic tool much like a slit lamp exam, which technology Goldstein hopes will yield a universal diagnostic-screening test that can be taken by everyone middle-aged and above as a routine part of annual physicals, which early-screening test could provide an idea of where someone is on the disease curve.

Alzheimer's disease can start many years, if not a decade or more, before the emergence of the first clinical symptoms.

Early intervention to slow or arrest disease progression is widely considered to be the best and fastest path to a cure.

"The ultimate goal is to cure the disease," says Dr. Goldstein. "And for this goal, we need an early diagnostic. It is my hope and dream that as this and other early diagnostic technologies come into general clinical use, we will have all the tools necessary to effectively combat and beat this terrible disease."

The Baby Boom Bomb:

The proportion of the U.S. population aged 65 and older is projected to increase from 12.4 percent in 2000 to 19.6 percent in 2030. Over that same span, the actual number of Americans 65 and older is expected to climb from 35 million to 71 million, and the number of Americans 80 and older will likely jump from 9.3 million to 19.5 million.

Alzheimer's disease is already the third most expensive disease in the country, costing more than \$150 billion a year. Nursing home and home health care expenses have soared to more than \$130 billion and are expected to rise at least 20 percent from 2000 to 2020. Experts say our nation's

already overtaxed health care systems simply cannot accommodate the projected rise in Alzheimer's disease's numbers with existing treatment options and techniques.

A recent national poll suggests that our general population remains dangerously uninformed about the disease. Fewer than half know anything about currently available treatment options.

Baby Boomers in the U.S. presents a huge medical challenge, they also can provide a major front for advocacy that would make an expedited cure a national priority.

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An international team of researchers concluded that variants in the SORL1 gene alter the gene's normal functioning and pump up production of toxic amyloid beta peptides, which result in late-onset Alzheimer's disease. The findings also suggest that SORL1, when functioning properly, may help protect the brain and decrease the likelihood of developing the disease.

"The importance of the finding is that it opens new pathways to explore the cause as well as potential targets for treatment of this devastating disease," says Richard Mayeux, M.D. co-director of the Taub Institute For Research on Alzheimer's Disease and the Aging Brain. "SORL1 represents another critical piece of the Alzheimer's disease puzzle,"

"Now that we know that variants in SORL1 are associated with late-onset Alzheimer's disease and we know the specific regions of the gene involved, our next step is to determine which of the variants contain the specific disease-causing alteration," said Dr. Mayeux.

Other topics in the Spring 2007 publication are Good Genes vs Bad Genes(ADR-Sponsored Research Looks at How Brains Go Awry), and Studies Show a Single Gene Variant May Protect Both Heart and Brain.

Mayo Clinic Breakthrough Bulletin published for Mayo Clinic's 2007 Alzheimer's Drive discloses, among other things, Imaging May Reveal Alzheimer's Protein In Living Subjects: The Minnesota Partnership Alzheimer's team, including researchers from Mayo Clinic, has discovered a way to view amyloid plaques in vivo(in a living specimen), setting the stage for early diagnosis and therapeutic steps before dementia occurs.

Previously, researchers had been able to take images of the amyloid plaques (the protein deposits that cause Alzheimer's) after using a molecular probe to label them. While promising, these images suffered from poor resolution. The breakthrough came with the introduction of a nontoxic, high contrast dye which greatly enhanced the quality of the MRI scans, allowing researchers to directly visualize amyloid plaques, track the progression of Alzheimer's and potentially monitor the effectiveness of plaque-reducing therapies. This technique may ultimately lead to much earlier diagnoses in humans and allow time for therapeutic steps before dementia occurs.....

March 28, 2007 Reuters News Alzheimer's vaccine works on mice: Japan scientist:

Japanese scientists have developed an oral vaccine for Alzheimer's disease that has proven effective and safe in mice. The team is preparing to move to small-scale clinical trials in humans, possibly this year. When administered to mice suffering from the disease, which causes dementia and is currently incurable, the vaccine reduced the amount of amyloid plaques in the brain and improved mental function. The vaccine is made by inserting amyloid-producing genes into a non-harmful virus. When taken orally, the virus stimulates the immune system to attack and break down the amyloid proteins in the brain, Tabira said.

U.S. drug maker Wyeth and its Irish partner Elan Corp have an Alzheimer's vaccine called ACC-001 in early stage human trials.

Des Moines Register May 2, 2007 Brain changes seen years before memory loss:

Brain structure changes occur years before a person shows signs of memory loss caused by Alzheimer's disease or other forms of dementia, a new U.S. study suggests.

"We found that changes in brain structure are present in clinically normal people an average of four years before mild cognitive impairment diagnosis," said study author Dr. Charles Smith of the University of Kentucky Medical Center in Lexington.

AARP BULLETIN June 2007 Closing In on Alzheimer's:

"Within three years, it's all but certain we'll have disease-modifying drugs that fundamentally change the nature of Alzheimer's, says Sam Gandy, M.D., chair of the National Medical and Scientific Advisory Council of the Alzheimer's Association and director of the Farber Institute for Neurosciences in Philadelphia.

Gandy says that if test results for the new drug, Alzhemed, from Neurochem, are positive, "the Food and Drug Administration could choose to fast-track the drug and we could conceivably see it approved next year."

And if Alzhemed fails to significantly slow the progress of the disease?

Scientists are still confident that one of the more than four dozen other drugs now in human trials will succeed. One of the most promising of those, Flurizan, from Myriad Genetics, should complete its tests in the next 18 months.

This next generation of drugs is designed to prevent, destroy and clean out deposits of beta-amyloid plaque that kill the brain's nerve cells, leading to the devastating loss of memory, reason and, ultimately, life that characterizes Alzheimer's.

In earlier, tantalizing study with 375 Alzheimer's patients, researchers at Elan Pharmaceuticals tested a vaccine designed to trigger an immune response that prompts the body to produce antibodies against amyloid. The vaccine had worked extremely well in mice, but the human trial was halted in 2002 when about 6 percent of the subjects developed brain inflammation.

Now Elan, in collaboration with drug manufacturer Wyeth, is back in Phase II trials with a vaccine researchers believe is as effective as the first, but safer. Therapies that kindle immune response are so promising that scientists are testing half a dozen other vaccines in humans. Some

vaccines induce the body to produce antibodies while others contain antibodies made in the lab.

Scientists are also working all out to determine the genes and other biological markers that can predict the disease before symptoms appear.

“Our best hope is to catch this disease early, says Morgan. “And if we can understand who is most at risk, we can begin treating them before it ever takes hold.” (David Morgan is director of basic neuroscience research at the University of South Florida in Tampa.)

The New York Times SUNDAY BUSINESS June 10, 2007 Taking on Alzheimer's:

Wyeth, where rodents tested in it's labs have, indeed, taken on some features of the human brain. Wyeth's animals are slow-witted, confused and forgetful because they suffer from the crippling dementia of Alzheimer's disease, which they acquired from a transplanted human gene. The company's scientists not only can give rodents Alzheimer's-they have also figured out how to take it away.

Wyeth has decided to go full bore against Alzheimer's, a disease that has defied effective treatment since it was first identified a century ago. The company has dedicated more than 350 scientists exclusively to Alzheimer's research, and they are working on 23 separate projects for medicines to possibly treat the disease.

“I think this is going to be the disease, and maybe one of the biggest health care political issues of my generation,” says Robert Essner, 59, Wyeth's professorial chief executive. “It's hard for anyone to envision how to provide health care in the United States if you're going to have to deal with the burden. You just start to add up the cost, 20 years from now as my generation gets old-it's phenomenal.”

The four Alzheimer's treatments now on the market work by regulating the action of chemical neurotransmitters in the brain. The drugs-Aricept by Eisai and Pfizer, Exelon by Novartis, Razadyne by Johnson & Johnson and Namenda by Forest Laboratories-have shown mixed results treating Alzheimer's symptoms and do nothing to stop the disease's progress.

Wyeth is wagering that it can find more promising treatments for a nebulous, stealthy disease that does more than rob people of their health and well-being. It also steals some of their most precious memories.

Essner is on the leading edge of a generation that is facing a huge emotional and financial burden from a disease that leaves victims requiring full-time nursing care. He is urging a national mobilization against what he describes a looming Alzheimer's “epidemic.”

Essner says he is concerned as much about the disease's dehumanizing effects as he is the costs.

While the exact cause of the disease is still unknown, researchers believe that genetic factors play a role and the heavy plaque deposits may contribute to tissue deterioration-leading to memory and recognition loss, linguistic problems and degraded motor skills. But scientists continue to debate whether plaque is a symptom or a cause of Alzheimer's.

Two drug companies that have progressed to late-stage tests of Alzheimer's treatments are Neurochem and Myriad Genetics. Neurochem says it may disclose results of its late-stage trial this month. Its drug, Alzhemed, aims at the plaque.

Myriad Genetics' product, Flurizan, is similar to an anti-inflammatory drug, and it may lower the production of the protein found in plaque.

Wyeth's biggest Alzheimer's bet, in partnership with Elan Pharmaceuticals, involves biological products that would actually slow or reverse the progress of the disease by attacking beta-amyloid.

While most researchers believe that the accumulation of beta-amyloid in the brain is the instigating factor of Alzheimer's, that theory is not without its critics.

Dr. Davies of Einstein believes plaque is a symptom of the disease rather than a cause. He subscribes to an alternative theory that focuses on tau, a protein found in the tangled nerve fibers in the brain of Alzheimer's patients, as the real culprit. His interests also frame a larger divide in the Alzheimer's world. Those who embrace the beta-amyloid protein theory are nicknamed "Baptists". Those who finger tau as the villain are called "Tauists." The two sides recently have moved closer together, more willing to say that beta-amyloid and tau may be working together in Alzheimer's.

Wyeth itself is keeping a research foot in both treatment camps, on the theory that it is better not to place all its bets on one pathway. It is working on compounds aiming at tau, as well as brain enzymes that have been implicated in Alzheimer's.

Wyeth and Elan began a partnership in 2002, but had a major setback in a joint project; however from that project certain results supported the idea that Alzheimer's plaque can be attacked with immunotherapy. After the initial failure Wyeth and Elan worked to develop a safer vaccine and also focused on another form of immunotherapy: passive immunization.

Passive immunization injects pre-made antibodies directly into patients. In theory, the antibodies then attach themselves to harmful plaque and dissolve it. Wyeth would deliver its antibody product, bapineuzumab, to patients through infusion, in a process much like chemotherapy for cancer patients.

David Morgan, an Alzheimer's researcher at the University of South Florida, says, "Its going to be the first test of what we call the amyloid hypothesis of Alzheimer's , Elan and Wyeth clearly are in the lead in developing immunotherapy."

At Wyeth's research lab near Princeton, scientists have tested bapineuzumab and other compounds on genetically altered mice, using a special swimming pool equipped with an invisible platform.

When a mouse is placed in the pool, it instinctively begins swimming around to find a resting place. Once a normal mouse finds the platform the first time , it can find its way back on follow-up swims. But the genetically altered mice become lost.

“The Alzheimer’s mouse cannot remember the location platform,” says Reka Hosszu, a research scientist at Wyeth who works with the animals. She says that an Alzheimer’s mouse will paddle aimlessly in the pool.

After treatment, the Alzheimer’s mice can find the platform more easily. And their brains look better. In before-and-after images, it is clear that globs of toxic plaque have cleared. “You can get rid of pretty much all of the amyloid,” says Dr. Pangalos as he displays a three-dimensional image of a mouse brain on his computer. “And you can reverse their memory to normal, like a young mouse.”

If all goes according to Wyeth’s plan, it should work in humans too. “We’re going after this,” Dr. Pangalos says, “and we’re not stopping until we’ve nailed it.”

Menelas Pangalos is Wyeth’s vice president for neuroscience research and a biochemist. He remembers visiting his grandmother in Greece while she was in the throes of the disease. While people may expect the elderly to lose their memories, Dr. Pangalos says that this is a false assumption that has gained traction only because Alzheimer’s is so prevalent.

“The problem is that it’s so common,” he said in an interview at Wyeth’s research laboratory near Princeton, N.J., where much of its Alzheimer’s work is conducted. “You assume it’s normal and it’s natural, but it’s not.”

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Stroke and Head Injury Increase Risk of Alzheimer’s Disease

The death of brain cells from stroke and head injury seems to trigger the development of amyloid-beta protein, a key factor in Alzheimer’s disease, according to a new report from the MassGeneral Institute for Neurodegenerative Disorders.

Scientists have known for some time that strokes and head injuries heighten people’s chances of developing Alzheimer’s disease.

In a series of experiments, the MassGeneral researchers unraveled the process by which strokes and other brain injuries create a vicious cycle of cell death and amyloid-beta production. Amyloid-beta is toxic to brain cells and is a key component in the brain plaque found in people with Alzheimer’s disease.

Dr. Tesco, of the Institute’s Genetics and Aging Research Unit, says her group’s findings “raise the prospect of novel therapies that could interfere with this process and reduce the risk of Alzheimer’s disease in stroke or head trauma patients.”

Tanzi, director of the research unit, adds: “Our findings shed new light on how the aged brain becomes more vulnerable to Alzheimer’s disease, since any insult to the brain—head injury, stroke or mini-strokes—can set off this process. Therapies that [block the chain of reactions] might be able to reduce the risk of Alzheimer’s or the more transient type of dementia that can

occur after such injuries.”

Alzheimer’s Disease Research has provided \$3,000,000 in grants for the Institute’s research.

Healthy Living: An Active Mind is a Healthy Mind

According to a study by Case Western Reserve University of Medicine in Cleveland, older adults with healthier brains tended to be more mentally and physically active than their peers between the ages of 40 and 60.

“Read, read, read,” advises Dr. Amir Soas, a co-investigator in the Cleveland study. “Do crossword puzzles. Pull out the chessboard or Scrabble. Learn a foreign language or a new hobby.”

In short: Do anything that engages your mind and body. And turn off that TV! “When you watch television,” says Dr. Soas, “your brain goes into neutral.”

It is never too late to start building intellectual muscle. Stimulating hobbies pay off regardless of the age they are started.