

The National Cell Repository

is a repository for families with Alzheimer Disease or severe memory loss. Families having two or more living individuals with memory loss are encouraged to participate. We would like to thank the hundreds of families nationwide who are already participating in the National Cell Repository. Many family members have provided blood samples, which researchers use to study Alzheimer disease (AD) and other related diseases. Our hope is that through the efforts of our participants, we will one day unravel the mystery of devastating diseases, like AD. We are always eager to accept new families to help us move toward this goal.

National Cell Repository Indiana Alzheimer Disease Center

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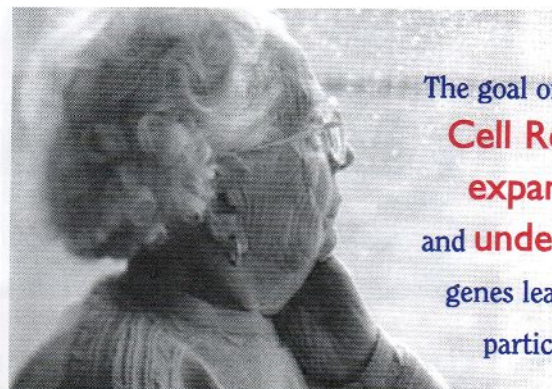
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NCR Update

Newsletter of the National Cell Repository

Volume I ■ February 2002



The goal of the **National Cell Repository** is to **expand the knowledge** and **understanding** of the **genes leading to dementia**, particularly Alzheimer disease.

The National Cell Repository is Funded for Another 5 Years

Tatiana Foroud, Ph.D. Indiana University

The National Cell Repository, initially established in 1991 with funding from the National Institute on Aging, a branch of the National Institutes of Health (NIH), has been awarded funding for another five years.

Since its inception, the goal of the National Cell Repository has been to expand the knowledge and understanding of the genes leading to dementia, particularly Alzheimer disease. During the next 5 years, the National Cell Repository will continue to seek families having at least 2 living members with Alzheimer disease. In addition, the National Cell Repository will now be actively recruiting families having 2 or more living members with other types of (non-AD) memory loss or dementia. It is hoped that, by studying patients with different types of dementia, scientists will learn more about the causes and progression of dementia and memory loss.

With the sequencing of the entire human genome, research in the area of Alzheimer disease and dementia is poised to make many new advances that will lead to more effective treatment for patients with dementia. Genetic studies typically focus not only on the individual with Alzheimer disease, but also on other members of their family. continued on page 2

A Checklist for the Caregiver

Mary Guerriero Austrom, Ph.D. Indiana University

While caring for a loved one with Alzheimer disease (AD) can be a rewarding experience, it can also be very stressful.

Caregivers often forget that in order to provide care for a loved one with AD they must first take care of themselves. It is very difficult for caregivers to put themselves first even for a short time, but please remember, **you cannot take care of anyone else if you are not well or are too exhausted to do so.**

Following is a checklist of ideas to help you maintain a healthy and stress-limiting lifestyle while caring for a loved one.

- ☐ I am eating three balanced meals a day.
- ☐ I am drinking 8 glasses of water a day.
- ☐ I am getting enough rest, ideally seven to nine restful hours of sleep a night.
- ☐ I am getting out and exercising three to four times a week.

Note: 30-minute brisk walk every other day is all you need. Walk with your loved one; exercise is great for AD patients too. If the weather is bad, walk in a mall.

- ☐ I talk to or do activities with friends or relatives weekly.
- ☐ I allow friends and relatives to help me when offered, and I ask for help if needed.

Note: It is easier to ask friends and family members to help with specific things, for example, to run errands for you, to help in the garden, or to stay with your loved one so that you can go to the doctor or hair dresser. Keep a list of chores handy and have family members check the list if they offer help.



- ☐ I keep my annual health care appointments, including dental care.
- ☐ My prescriptions are up-to-date.
- ☐ I am aware of or know how to find out about other resources for caregiving like support groups, adult day care programs, etc..

- ☐ I have legal and financial papers in order and ready if needed (e.g. power of attorney, wills, health care representative, etc...).
- ☐ I spend time each week doing a hobby or activity I enjoy. It is important not to give up all of your enjoyable activities.

If you are having trouble with some of these things, please see your physician and talk about it. There are many services available to help caregivers cope.

For more information please call the Indiana Alzheimer Disease Center at 1-800-526-2839.

National Cell Repository

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By studying individuals in the same family, some of whom develop memory loss and dementia and some of whom do not, it is hoped that studies will identify both the genes and risk factors that increase and decrease risk for Alzheimer disease. Therefore, it is essential that we continue to have active participation in the National Cell Repository from members of the family with dementia as well as those who do not have any memory loss.

During the coming year, we hope to hear from your family. It is essential that National Cell Repository staff be made aware of any new individuals in the family who are experiencing memory loss or are diagnosed with Alzheimer disease. To help researchers, we will continue to collect medical records from all family members experiencing memory loss or dementia. These medical records are very important to researchers who are studying the causes of dementia. In addition, a planned autopsy of a loved one with dementia is another very important way to obtain a defini-

tive diagnosis and allow researchers to better understand the changes in the brain that cause Alzheimer disease and other types of dementia.

We thank you again for your involvement in the National Cell Repository. Your active participation in this research effort will improve our understanding of the causes of Alzheimer disease and other types of dementia and will likely prove essential for the development of better treatments and cures for this devastating disease.

Genetic Research and the National Cell Repository

Thomas D. Bird, Ph.D. University of Washington

Alzheimer's Disease (AD) is a common and devastating brain disease. It produces a neurological syndrome known as dementia, which robs the individual of his or her memory and personality. It is estimated to afflict 3 to 4 million Americans and that number will expand as the overall age of our population continues to increase.

Scientific research on the causes and prevention of AD has been progressing on many fronts. One of those fronts is genetics.

This is because it has been known for many years that genetic factors play a role in AD. The best evidence is the existence of rare families that have large numbers of persons with AD occurring generation after generation. Most of these families have early onset AD, meaning that the disease begins before the age of 60, frequently before the age of 55.

In the past decade genetic research has had tremendous success in identifying the causes of these rare forms of early onset familial AD. Three specific causative genes have been identified and are known as the amyloid precursor protein gene (APP), presenilin 1 (PS1) and presenilin 2 (PS2) genes. This research has greatly expanded our knowledge of the role of amyloid and other

related proteins leading to the nerve cell degeneration that results in AD. Not only has this research produced a better understanding of the causes of AD, but the research has produced valuable clues pointing to new types of potential treatments for all forms of AD.

Late onset AD (beginning after age 60 or 65) is far more common than early onset. In fact, the occurrence of AD is closely related to age.

The **discovery** of the **APOE/AD relationship** has greatly **benefited** our **understanding** of genetic **mechanisms** contributing to **late onset AD**.

AD increases in frequency with each decade of life and becomes very common after the age of 80. It is clear that genetic factors also play a role in late onset AD. We need to explain why some families have many elderly persons affected with AD and others have very few.

One such genetic factor has already been identified. It is known as apolipoprotein E (APOE). Persons carrying the $\epsilon 4$ genetic type of APOE are at increased risk for developing AD. That risk, however, is not 100%. Some people with the $\epsilon 4$ type do not develop AD and some persons without the $\epsilon 4$ do develop AD. Nevertheless, the discovery of the APOE/AD relationship has greatly benefited our understanding of genetic mechanisms contributing to late onset AD.

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Genetic Definitions

The following definitions were obtained from the Alzheimer Association (www.alz.org).

Allele

One of two or more alternative forms of a gene; for example, one allele of the gene for eye color codes for blue eyes, while another allele codes for brown eyes.

Amyloid precursor protein (APP)

A protein found in the brain, heart, kidneys, lungs, spleen, and intestines. The normal function of APP in the body is unknown. In Alzheimer's disease, APP is abnormally processed and converted to beta amyloid protein. Beta amyloid is the protein deposited in amyloid plaques.

Apolipoprotein E

A protein whose main function is to transport cholesterol. The gene for this protein is on chromosome 19 and is referred to as APOE. There are three forms of APOE: $\epsilon 2$, $\epsilon 3$, and $\epsilon 4$. APOE- $\epsilon 4$ is associated with about 60 percent of late-onset Alzheimer's cases and is considered a risk factor for the disease.

Beta amyloid protein

A specific type of amyloid normally found in humans and animals. In Alzheimer's disease, beta amyloid is abnormally processed by nerve cells and becomes deposited in amyloid plaques in the brains of persons with the disease.

Chromosome

An H-shaped structure inside the cell nucleus made up of tightly coiled strands of genes. Humans have a total of 46 chromosomes arranged in pairs and numbered 1-23. Genes on chromosomes 1, 14, 19, and 21 are associated with Alzheimer's disease.

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Legal Planning for Incapacity

With the general increase in the elderly population, increased attention has been focused on the particular legal and financial planning needs of older adults. Many people

live long, healthy lives because of medical advances and healthier lifestyles.

But all people face the possibility that some of those years may involve mental incapacity and the high costs of long-term care. The statistics alone are compelling: there are currently in excess of 4 million people in the U.S. who have Alzheimer's Disease (or a related dementia). Ten percent of those who are 65 and older have the disease, while almost 50% of those 85 years or older are affected. The number of individuals with Alzheimer's disease or a related dementia is expected to skyrocket to 14 million by 2050.

Persons with Alzheimer's disease, disabling strokes or accidents present the strongest need for planning. Failing to plan for legal decision-making authority depletes family resources, adding to the emotional hardships placed on the family by the disease or injury. **Everyone should plan for the possibility of disability, and if signs of a disabling illness are present, legal planning should begin immediately.** Many more planning options are available when an individ-

ual is mentally competent and before significant family resources have been expended.

LEGAL MATTERS

Our laws are based on a presumption that each individual is presumed competent to make his or her own decisions about financial, personal and health care matters, and that others, even those close to him or her, have no special legal status to take over decision-making authority. Therefore, the most basic legal planning a family can accomplish is to discuss and establish who should be responsible for such matters when a family member cannot function as described above. This means choosing, for each member of a family, other family members or friends who will have legal authority to make decisions about financial and health care issues.

The law is written to protect people against those who would take advantage of them, and does not readily distinguish between the well-intended person seeking to fulfill a real need and the unscrupulous individual who would use the victim's vulnerability to his or her own advantage. Once an individual's "Response Team" has been identified, the individual must empower the chosen persons with accurate, valid legal documents. **continued on page 5**

LEGAL DEFINITIONS

The following definitions were obtained from the Alzheimer Association (www.alz.org).

Durable power of attorney

A legal document that allows an individual (the principal) an opportunity to authorize an agent (usually a trusted family member or friend) to make legal decisions for when the person is no longer able to do so themselves.

Durable power of attorney for health care

A legal document that allows an individual to appoint an agent to make all decisions regarding health care, including choices regarding health care providers, medical treatment, and, in the later stages of the disease, end-of-life decisions.

Elder law attorney

An attorney who practices in the area of elder law, a specialized area of law focusing on issues that typically affect older adults.

Living trust

A legal document that allows an individual (the grantor or trustor) to create a trust and appoint someone else as trustee (usually a trusted individual or bank) to carefully invest and manage his or her assets.

Living will

A legal document that expresses an individual's decision on the use of artificial life support systems.

Medicaid

A program sponsored by the federal government and administered by states that is intended to provide health care and health-related services to low-income individuals.

Medicare

A federal health insurance program for people age 65 and older and for individuals with disabilities.

Empowering Your Response Team

The end result of effective "Response Team" planning is signing the legal documents needed for your response team to be effective if you become incapacitated. Some of these documents may become effective immediately, others may be held, or "escrowed", by your attorney until they are necessary. You must consider four major areas of concern:

Financial matters: Who will have legal authority to manage bank and investment accounts, and how much authority will they have? **Legal tools: Durable Power of Attorney, Living Trust.**

Medical decisions: What are your desires about the use of life-prolonging medical technology and who may to give consent to, or refuse, medical care when you are unable to do so? **Legal tools: Health Care Declaration, Health Care Power of Attorney.** Note that a Health Care Declaration may be much more comprehensive than a Living Will, which may be effective only if your illness is diagnosed as terminal.

Financial security: Who can make decisions related to a potential high-cost illness or long term care need? **Legal tools: Trusts of various types, Durable Power of Attorney (with special authority to protect assets), Long Term Care Insurance, Medicaid Planning.**
Transfer of your estate: How will your assets be distributed before and after your death? **Legal tools: Will, Trust, Estate Planning.**

Legal Options After Incompetence

When a person with a disabling illness or injury can no longer participate in legal decisions and transactions, legal options must be exercised by other family members for the benefit of the disabled individual and the family as a whole. If no advance planning has been conducted to properly equip your response team, there can be serious problems. A spouse can usually access jointly-owned savings accounts and certificates of deposit, but jointly owned real estate, life insurance, stocks, and bonds all require the signatures of both joint owners. If no Durable Power of Attorney or Trust was executed by the disabled person before incapacity, a **Guardianship** will generally be needed to deal with these items.

Severns and Bennett are a team of experienced law professionals who are located in Indiana. They specialize in elder law. For more information, you may contact them at (317) 633-4090 or log on to their website at www.severns.com



Sources for Information and Support:

Alzheimer's Association

<http://www.alz.org>

Tel: 312-335-8700 or 800-272-3900

Alzheimer's Disease Education and Referral Center (ADEAR)

<http://www.alzheimers.org>

Tel: 301-495-3311 or 800-438-4380

‡ ADEAR lists all 29 Alzheimer Disease Centers (ADCs) and their contact information.

Depression and Related Affective Disorders Association

<http://www.med.jhu.edu/drada>

Tel: 410-955-4647

Family Caregiver Alliance

<http://www.caregiver.org>

Tel: 415-434-3388 or 800-445-8106

National Parkinson Foundation

<http://www.parkinson.org/>

Tel: 305-547-6666 or 800-327-4545

Parkinson's Disease Foundation (PDF)

<http://www.parkinsons-foundation.org>

Tel: 212-923-4700 or 800-457-6676

Society for Progressive Supranuclear Palsy

<http://www.psp.org>

Tel: 410-486-3330 or 800-457-4777

National Organization for Rare Disorders (NORD)

<http://www.rarediseases.org>

Tel: 203-746-6518 or 800-999-NORD (6673)

Centers for Disease Control and Prevention (CDCP)

<http://www.cdc.gov>

Tel: 800-311-3435

Creutzfeldt-Jakob (CJD) Foundation Inc.

<http://cjd.foundation.org>

Tel: 954-704-0519 or 305-891-7579

Research Opportunities

Alzheimer's Disease Anti-Inflammatory Prevention Trial (ADAPT)

- Purpose: To study the ability of naproxen and celecoxib (non-steroidal anti-inflammatory medications) to delay or prevent the onset of AD and age-related cognitive decline.
- Eligibility: Healthy, ages 70+, family history of dementia (i.e. AD)
- Locations: Arizona, Maryland, Massachusetts, New York
- Contact Information: Chris Szekely, PH: 866-2STOP-AD (toll free)

Alzheimer's Disease Prevention Trial

- Purpose: To determine whether estrogen and progesterone can delay the onset of memory loss or AD in elderly women with a family history of the disease.
- Eligibility: Healthy, ages 65+, family history of dementia
- Locations: California, Connecticut, District of Columbia, Florida, Maryland, New Jersey, New York,

North Carolina, Oklahoma, Rhode Island, South Carolina, Virginia

- Contact Information: Evelyn Dominguez-Rivera, PH: (212) 305-5805

Mild Cognitive Impairment Trial

- Purpose: To study the effectiveness of a drug shown to improve the symptoms of memory loss.
- Eligibility: Individuals with mild cognitive impairment
- Locations: Indiana
- Contact Information: Nicki Coleman, RN, E-mail: ndcoleman@iupui.edu, PH: (317) 274-1351

CATIE-Alzheimer's Disease Trial

- Purpose: To determine whether three antipsychotic medications (olanzapine, quetiapine, and risperidone) help prevent behavioral and psychiatric concerns in patients with Alzheimer disease.
- Eligibility: Diagnosis of Alzheimer disease, presence of psychiatric disturbances (e.g. hallucinations, delusions, agitation)

- Locations: Alabama, California, Florida, Georgia, Hawaii, Illinois, Iowa, Louisiana, Maryland, Minnesota, Missouri, New Hampshire, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina
- Contact Information: Karen Dagerman, PH: (323) 442-3715

Estrogen Effects on Memory Functioning in Post-Menopausal Women and Patients With Alzheimer's Disease

- Purpose: To examine whether three months of estrogen administered to 1) post-menopausal women and 2) women with mild-moderate Alzheimer's disease who are concurrently treated with standard therapy (generally Aricept), will improve memory and learning.
- Eligibility: Female, Between ages 45-85, normal or mild AD
- Location: Vermont
- Contact Information: Katie Hancur, Ph: (802) 847-8596, E-mail: Catherine.Hancur@vtmednet.org

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Reader's Response Section:

What topics/questions would you like covered in future NCR Update issues?

What resource information would you like provided in future issues?

Moving? Please let us know your new address:

Name

Phone

Street Address

City

State

Zip

Please return this form to: **National Cell Repository**
Indiana Alzheimer Disease Center
Department of Medical Molecular Genetics
975 West Walnut St., IB 130
Indianapolis, IN 46202-5251

Thank you!

Research Opportunities continued from page 7

A Phase I Study of Ex Vivo Nerve Growth Factor Gene Therapy for Alzheimer's Disease

- Purpose: To determine whether gene therapy causes side effects in humans, and may also give us a preliminary sense of whether this will be effective in combating Alzheimer's disease in humans.
- Eligibility: Ages 50+, diagnosis of probable AD
- Location: California
- Contact Information: Mary M Pay, PH: (858) 622-5800, E-mail: mpay@ucsd.edu

Effect of the HMG-CoA Reductase Inhibitor Atorvastatin Calcium, Lipitor, in the Treatment of Alzheimer's Disease

- Purpose: To assess the clinical benefit of a cholesterol-lowering drug in the treatment of Alzheimer's disease.
- Eligibility: Ages 50+, diagnosis of possible or probable AD
- Location: Arizona
- Contact Information: D. Larry Sparks, PH: (623) 876-5463, E-mail: Larry.Sparks@SunHealth.org

PET Scan of Brain Metabolism in Relation to Age and Disease

- Purpose: To improve the understanding of how certain diseases like AD change the shape and function of the brain.
- Eligibility: Normal individuals and patients with AD, between 18 and 90 years of age
- Location: Maryland
- Contact Information: Patient Recruitment and Public Liaison Office, PH: 1-800-411-1222, E-mail: prpl@mail.cc.nih.gov

A Study of Predictors and Possible Delay of Alzheimer's Disease

- Purpose: To determine whether an anti-inflammatory drug (celecoxib) can delay the onset of AD.
- Eligibility: Ages 50-90 with concerns of memory loss
- Location: California
- Contact Information: Andrea Kaplan, PH: 310-825-0545, E-mail: AKaplan@mednet.ucla.edu

10 Signs of AD

1. Memory loss.
2. Difficulty performing familiar tasks.
3. Problems with language.
4. Disorientation to time and place.
5. Poor or decreased judgment.
6. Problems with abstract thinking.
7. Misplacing things.
8. Changes in mood or behavior.
9. Changes in personality.
10. Loss of initiative.

If you recognize several of these warning signs in yourself or a loved one, the Alzheimer's Association recommends consulting a physician. Early diagnosis of Alzheimer's disease or other disorders causing dementia is an important step in getting appropriate treatment, care, and support services. **For more information, call the Alzheimer's Association at (800) 272-3900.**



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