INSTITUTE ON AGING
UNIVERSITY OF PENNSYLVANIA
SPRING/SUMMER 2008

TOP OF MIND: HEALTHY BRAIN AGING AT THE SYLVAN M. COHEN ANNUAL RETREAT

From your head, shoulders, and knees to your toes, healthy aging is a topic that is on many of our minds. With the rising numbers of individuals dealing with or touched by cognitive impairment, the issue of healthy *brain* aging stirs up even more curiosity. If I keep misplacing my keys, is it Alzheimer's? If it is taking me a little longer to match faces and names - or recall what it was I needed from the store, do I need to be worried and get a full workup at the doctor's? There is so much that is frustrating and even frightening about brain aging. Just what is *healthy* about it?

At this year's Sylvan M. Cohen Annual Retreat with Poster Session on Aging, a special 'Healthy Brain Aging Team' was assembled, comprised of the top brain researchers in the country. Each team member approached the day's topic with a particular focus. The goal was of course not just to underscore the importance of actively taking care of one's brain but also to talk about what brain aging is and the role that research has played, and continues to play, in learning more about the aging brain.

Dean Arthur Rubenstein, Penn School of Medicine, welcomed the capacity crowd of over 300 that had gathered in the Hall of Flags. He spoke of Penn's university-wide commitment to older adults and their families, a commitment that encompasses cutting edge basic science research, excellence in clinical care, and educational events such as the IOA Annual Retreat. He also thanked Mrs. Alma Cohen, widow of Sylvan M. Cohen, for her continued, gracious support of the annual event in her husband's memory, as well as Eli Lilly and Company for its special support of the afternoon.

After brief remarks from IOA Director, Dr. John Trojanowski, which reminded all in attendance of the demographic imperative that is looming, Marcelle Morrison-Bogorad, PhD, Director of the Division of Neuroscience at the National Institute on Aging, addressed the question of why healthy

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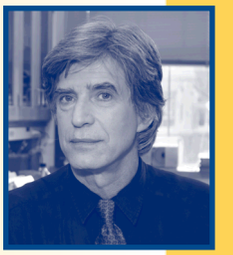
Message from the Director



John Q. Trojanowski, MD, PhD

Sometimes we researchers are seen as having a bit of tunnel vision, if you will. Our focus is the research and the numbers, or so many may think. The real secret of researchers is that they love to share the data and talk about what it means. PowerPoint and a laser pointer are all you need to get us going. This is precisely why we were all so thrilled to have a curious, captivated audience of 300+ attend this year's Sylvan M. Cohen Annual Retreat with Poster Session on Aging. While I may refer to the event as the "Woodstock of Healthy Brain Aging," minus the mud and the music, I do think the event demonstrated just how interested the average person is in aging well. There is a genuine thirst for knowledge and conversation.

To meet that need, with the support of The Bingham Trust, the IOA has again awarded 8 pilot research grants (see page 6) to help jumpstart new projects and avenues of research in aging. At the same time, we are making every effort to help link the public with research resources, such as this newsletter and

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Sylvan M. Cohen Annual Retreat with Poster Session on Aging

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brain aging does matter and gave an overview of where the science stands regarding healthy brain aging - from the known normal changes that occur with age to those areas that are cause for concern and under further investigation. Why does healthy brain aging matter? The connection between how one's mind functions (or doesn't) and one's quality of life is direct. The cascade that develops with cognitive impairment affects all aspects of life - the ability to give consent, to drive, to care for oneself, to relate to others, and so on.

As Dr. Morrison-Bogorad explains, research is showing just how fuzzy the difference between normal, healthy aging brains and those with Alzheimer's is. The hope is that current research like the Alzheimer's Disease Neuroimaging Initiative (ADNI), for which Penn leads the biomarkers core, will help clarify the differences and help better determine just who will develop cognitive impairment and who will not. Ongoing research, begun in animals, looking into education, learning, physical exercise, and nutrition has been promising. But as Dr. Morrison-Bogorad suggests, while short-term results look good, clinical trials are really needed to determine what the long-term effects of things like exercise, learning, and nutrition truly are.

Marilyn Albert, PhD, Director of the Division of Cognitive Neuroscience and Co-Director of the Alzheimer's Disease Center at Johns Hopkins University, tackled vascular risks and their connection to and impact on healthy brain aging. Research has shown that your risk for cognitive decline seems to increase with the more vascular risks you have. Studies are showing that there are measurable cognitive differences between those individuals with high blood pressure, high cholesterol, diabetes, smoking, and proven coronary artery disease and those without, with a decline in cognitive function occuring in those with the vascular disease or vascular risk factors. Also, it seems that individuals with multiple vascular risk factors are more likely to have heart *and* brain disease. Similarly, the situation also appears to be additive when dealing with strokes and dementia.

Like Dr. Morrison-Bogorad, Dr. Albert is very optimistic about the future of finding ways to prevent cognitive decline rather than waiting to begin treatment. Clinical trials to date have been very promising at targeting a singular vascular risk factor and affecting improvement. What is needed are more clinical trials that perhaps attempt to target two or more risk factors at once to determine their efficacy and impact.

Carl Cotman, PhD, Director of the Institute for Brain Aging and

Dementia, at the University of California, Irvine, walked us through the ongoing research into how physical activity impacts healthy brain aging, based primarily on animal studies he has conducted as well as results from other studies. Results from the Nurses' Health Study show that regular, long-term physical activity (including walking) is inversely related to cognitive decline. If you're active and moving, your brain is healthy and cognitively intact. In fact, it can take 2-3 years 'off' of your brain. Studies have shown that exercise induces brain growth factors, maintains larger brain volume, and enhances synaptic plasticity. Exercise also improves levels of brain chemicals directly linked to learning and the rate of learning and reduces beta-amyloid accumulation and inflammation in Alzheimer's mouse models. Studies have shown that environmental enrichment and an anti-oxidant diet can even reverse cognitive decline in older canines. Studies in humans support the link between improved brain function and exercise, but controlled studies are still needed.

Hugh Hendrie, MB, ChB, DSc, Center Scientist at the Indiana University Center for Aging Research, discussed the links between cognitive and emotional health, the growing attention being paid to emotional health - even happiness - around the world, the genuine need for trials to measure efficacy and effectiveness, as well as the new national roadmap to maintain cognitive health, called "The Healthy Brain Initiative," a collaborative effort from the CDC and the Alzheimer's Association to move cognitive health into public health practice.

Following the speakers, Nora Dowd Eisenhower, JD, Secretary of Aging for the Commonwealth of Pennsylvania served as discussion moderator and expertly guided the general question and answer session. From the discussion, the 'take home' information for the day included encouragement to adopt a heart healthy lifestyle because heart healthy may be brain healthy, too; strong evidence showing the importance of exercise and the positive impact it may have; a resounding endorsement for shopping as it engages mind and body, and a definite call to action, if you will, for *everyone* to become involved in research - both those diagnosed with a disease or disorder and, just as important, those who are 'normal controls' or without the disease/disorder being studied.

Ending the day, over 70 posters were presented in three major categories: basic science, clinical research, and education/community/other. Participants were welcomed from across Penn and the Philadelphia region. Congratulations to this year's winners - and all participants - who are listed online. To view complete video from this year's speakers and from the Poster Session, visit the IOA website at **www.med.upenn.edu/aging/AnnualRetreat2008.shtml**. You will need Real Player to view the video; you can download the program at **www.real.com**.

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Message from the Director

our website, that make the concept of an 'informed consumer' that much more real.

Did you know that the NIA has launched a Spanish-language website for older adults? Check out ***www.nia.nih.gov/Espanol****. Have you visited the NIA's English website? Take some time with the computer - at home or at the local library - and surf. Investigate various health subjects like Alzheimer's, cancer, diabetes, tips for maintaining healthy lifestyle and ways to choose a doctor, free publications you can order online or over the phone, and links to other health-related websites. The Alliance for Aging Research has created 4 'pocket films' that offer a quick look at Alzheimer's disease. Visit* ***www.aboutalz.org*** *to view them online, request a copy, and share the details with others. This is in addition to the two videos produced by Penn and three partner Alzheimer's Disease Centers - "Shining a Light on Alzheimer's" and "Taking the Steps to Healthy Brain Aging" - produced, as were the pocket films, thanks to a grant from the MetLife Foundation. Don't forget the Pennsylvania Department of Aging's website at* ***www.aging.state.pa.us/****. There is a wealth of information and assistance out there to make us all better informed about what healthy aging is, how to 'age in place,' and how to help further aging research. Learn more!*

Research at Penn: News and Events in Neurodegenerative Diseases

Beyond Magic Bullets to Aß: Targeting Multiple Pathways for Alzheimer's Drug Discovery

The Center for Neurodegenerative Disease Research (CNDR) held its 7th Annual Marian S. Ware Research Retreat on November 9, 2007. Leaders in Alzheimer's disease (AD) drug discovery research from several, major pharmaceutical companies presented updates on their respective companies' research efforts and discussed the challenges and promises of drug discovery for AD.

Summarized fully on the Alzheimer's Research Forum (AlzForum), presenters included Mike Hutton from Merck and Co.; Barry Greenberg from Neurochem; Christopher Austin from the NIH's Chemical Genomic Center and the National Human Genome Research Institute; Holly Soares from Pfizer; Peter Reinhart from Wyeth Research; Guy Seabrook from Merck Research Laboratories, and Steven Paul, President of Lilly Research Laboratories. To link to the AlzForum summary, visit CNDR's new website at **www.med.upenn.edu/cndr** and click on 'For Our Research Colleagues' and then 'Seminars/Events.'

Penn Udall Center for Parkinson's Research Holds First Symposium

The Penn Udall Center for Parkinson's Research held its first symposium on April 29, 2008. "Translational Research in Lewy Body Disorders" brought together movement disorder physicians and researchers in cognition and neuropsychiatry from across the Penn School of Medicine and University of Pennsylvania Health System to discuss basic and clinical aspects of Lewy body disorders and to explore efforts to enhance the care and treatment of patients and the training of physcians. To view streaming video of the day's presentations from Penn researchers and clinicians, visit the Penn Udall Center website at **www.med.upenn.edu/udall**.

Neuroscience and Neuropsychology of Aging at Penn ADC

The loss of structural elements of neurons in brain regions that promote cognitive processing is thought to be an essential step in the cascade that leads to the loss of memory and other cognitive abilities that characterize AD.

In collaboration with colleagues at Rush University Medical Center in Chicago and the University of California, San Diego, researchers here at the Penn Alzheimer's Disease Center have received funding from the National Institute on Aging (NIA) to explore in greater depth the relation of structural elements in the brain to both cognitive function in persons with the spectrum of cognition - from normal to Mild Cognitive Impairment (MCI) to Alzheimer's disease (AD) - and the pathologic hallmarks of AD, such as amyloids and tangles. To date, relatively few studies have looked at this connection.

Using the well-characterized brain tissue from deceased participants in the Rush Alzheimer's Disease Center's Religious Orders Study and Memory and Aging Project, the collaborators will work to develop a high throughput method for estimating the number of neurons

From the Caregiver's Perspective:

Can We Call It Frontotemporal Disease, Not Dementia?

"The term 'dementia' has become a convenient tool by which many physicians describe a broad group of symptoms common to many brain disorders. Unfortunately, the clinical diagnosis often carries with it unintended connotations in the lay language," writes Dr. Don Trachtenberg with Dr. John Trojanowski in the May 2008 *Archives of Neurology* (V 65:5). Writing from the perspective of a caregiver to someone with a form of frontotemporal disease, Dr. Trachtenberg shares his view that we as a society need to recognize the impact the label 'dementia' - with its many layers of meaning and stigma - can have on a person and alter our terminology to afford more sensitivity to those diagnosed with memory and cognitive disorders. "Dementia," Dr. Trachtenberg continues, "is a dead-end diagnosis, a word with only negatives for the patient's future." Substituting 'disease' for 'dementia' is both compassionate and a more appropriate linguistic and diagnostic term.

in the hippocampal formation. The project will also draw from an evolving post-mortem brain neuroimaging collaboration at Rush and ongoing collaborations between Penn and the University of California at San Diego. Dr. Steven E. Arnold, Professor of Psychiatry and Neurology, Director of the Penn Memory Center (PMC), Associate Director of the Alzheimer's Disease Center, and leader of the ADC Clinical Core, is the lead Penn investigator on this project.

More Genes for Lou Gehrig's Disease Identified

Two more mutations have been found in the recently discovered disease protein, TDP-43, a protein implicated in amyotrophic lateral sclerosis (ALS or Lou Gehrig's Disease) and certain types of frontotemporal dementia (FTD), by Penn researchers and colleagues at the Veterans Affairs Medical Center in Seattle, WA. According to paper co-author, Vivianna Van Deerlin, the mutation discoveries support a direct link between the genetics and the clinical pathology of ALS and certain types of FTD, resolving the issue of whether TDP-43 was involved in the disease itself or just a by-product of the disease. For Jerry Schellenberg, formerly of the Seattle VA Medical Center and joining Penn's faculty in September, the collective data suggest strongly that there are mutations in TDP-43 that cause some forms of ALS. Surveying individuals with ALS or ALS with FTD and brains with TDP-43 present, researchers were able to determine the DNA sequence of the gene for TDP-43. In the process, they found two families in which the mutated gene tracked with the disease, appearing in all the family members who had the disease (either ALS or ALS with FTD) and absent in those who did not. Further study showed that people with a mutated form of TDP-43 actually have TDP-43 deposited in their brain. The implications are major as TDP-43 appears in a variety of diseases, including 20% of Alzheimer's disease cases. Further research is needed to develop an understanding of how the mutation in TDP-43 causes disease.

Penn Researchers Find Lou Gehrig's Disease Protein Throughout Brain

Building on their discovery of the misfolding protein, TDP-43, which was found to accumulate in the motor areas of the brains of patients with ALS, or Lou Gehrig's disease, researchers at CNDR have now shown that TDP-43 accumulates throughout the brain. This suggests that ALS has broader neurological effects than previously appreciated and that treatments need to take into account more than motor neuron areas. The article discussing the discovery appeared in May's issue of the *Archives of Neurology*. The research team is now trying to find out whether pathological TDP-43 causes nerve cells to lose their normal function or if they take on a toxic function. "The primary implication for ALS patients is that we have identified a molecular target for new therapies," says co-author John Q. Trojanowski, MD, PhD. "The other implication is that new therapies for ALS now need to go beyond treating only motor neurons." CNDR's Felix Geser was lead author on this study. Linda Kwong, Maria Martinez-Lage, Lauren Elman, Leo McCluskey, Sharon Xie, and Virginia Lee, all from CNDR, and Nicholas Brandmeir, of Albany Medical College, Albany, NY were co-authors. This research was supported by grants from the National Institute on Aging.

The Power of Small Molecules to Take Apart Disease-Associated Protein Fibers in Alzheimer's

In the world of Alzheimer's disease (AD) research, researchers at Penn have shown how a small molecule is able to selectively take apart abnormally folded protein fibers connected to AD and prion diseases. Published in May 2008, the researchers' findings have implications for new treatments for a range of neurodegenerative diseases. The small molecule, DAPH, selectively targets the areas that hold fibers together and converts fibers to a form that is unable to grow. This suggests that it is possible to generate effective small molecules that can attack the amyloid fibers that are associated with many devastating neurodegenerative diseases. Senior author, James Shorter, PhD, Assistant Professor of Biochemistry and Biophysics, Huan Wang, and others are now turning their focus to how DAPH acts to stop the fibers from growing. It appears to remodel fiber architecture. Both amyloid-beta and Sup35, two very different proteins, are sensitive to DAPH. Next, the researchers are working to identify DAPH variants that do not affect all amyloids indiscriminately, to prevent impeding those amyloids that may be beneficial to brain function. This work was funded in part by the Penn Alzheimer's Disease Core Center and the Institute on Aging, in addition to several other leading funding institutions.

Promising New Research Funded: IOA Awards $400,000 in Pilot Grants for 2009

The IOA Pilot Research Grant Program is designed to support new faculty entering the field of aging, to assist Penn faculty in obtaining critical, preliminary data which serve as the basis for grant applications to agencies funding aging research, and to stimulate multi-disciplinary projects that focus the diverse expertise at Penn toward aging research. Through this, the IOA fosters the exploration of new directions in the field of aging on a broader scale. With the generous support of The Bingham Trust, the Pilot Research Grant Program awarded eight pilot grants to investigators and research projects in the School of Medicine and the School of Arts and Sciences for 2008.

Hillary R. Bogner, MD, MSCE

School of Medicine, Department of Family Medicine and Community Health

"Integrating Depression Services into Type 2 Diabetes Mellitus Management"

Many older patients do not take their medications for Type 2 diabetes mellitus (DM) as prescribed by their physician. Depression is common among patients with Type 2 DM and may be the reason why patients do not take their medications as prescribed. A program in which Type 2 DM and depression are treated together in primary care would improve the health of older patients with both Type 2 diabetes and depression and would be practical in real world practices with competing demands for limited resources. People can better control their Type 2 DM if they treat their depression, and the same strategies can be used to help patients take their medications for both conditions. In this program patients would be involved in identifying problems with taking their medicines and working on solutions. The aims of this program would be to improve how patients take their medications for Type 2 DM and depression as well as blood glucose control and symptoms of depression over 3 months. To see whether this program works, we will compare the results of patients receiving this program to those who do not receive the program. Findings may lead to the development of other programs in which depression and chronic medical conditions are treated together.

Nalaka Gooneratne, MD

School of Medicine, Division of Geriatric Medicine

"A Novel Method for the Early Detection of Delirium in Hospitalized Patients with Cognitive Impairment Using Wrist and Ankle Accelerometry"

Delirium is a common problem that affects older adults with cognitive impairment when they are hospitalized. It is described as a fluctuating level of alertness/awareness that is often characterized by confusion and disorientation. It can be very stressful for the patient, their caregiver, and the health care staff because it can interfere with proper patient care. Early identification of delirium is very challenging because older adults with cognitive impairment may not be able to accurately report their symptoms. The major goal of this project is to determine if abnormal rest-activity patterns, such as increased activity during the sleep period, can be used to identify a pre-delirium state in older adults with cognitive impairment during the course of their hospitalization. We plan to use a small wrist-worn device to monitor a patient's activity level and identify periods of high and low activity. We will then analyze this information using a variety of mathematical equations to see if one can effectively identify a pre-delirium state. Detection of this pre-delirium state could then allow for earlier treatment of delirium, which in turn could significantly reduce the risk of hospital complications when older adults with cognitive impairment are hospitalized.

Michael Granato, PhD

School of Medicine, Department of Cell and Developmental Biology

"Zebrafish as a Model for Peripheral Nerve Regeneration"

Patients with traumatic peripheral nerve and spinal cord injuries (40 per million population) require extensive medical treatments, and with an aging population and changing demographics these numbers are expected to skyrocket. Even for injuries to peripheral nerves, where the potential of regeneration is retained, the frequent lack of a favorable functional outcome remains an important clinical problem. This is based in part on the fact that nerve regeneration is a complicated process that involves many cellular mechanisms, including local neurite degenera-

tion, neurite outgrowth/guidance, and synapse formation just to name a few. We propose to generate a universal tool kit to visualize (and ultimately manipulate), in living zebrafish larvae and in real-time, the cellular and subcellular events that take place during nerve degeneration and regeneration.

Frank S. Lee, MD, PhD
School of Medicine, Department of Pathology and Laboratory Medicine
"Targeting Prolyl Hydroxylase to Treat Anemia in the Aging"

Anemia (low red blood cell mass) is a common clinical condition observed in the aging population, and is accompanied by significant morbidity. It has been estimated that 10% of the population 65 years and older is anemic. Understanding the mechanism by which red blood cell mass is regulated may lead to novel means to treat this important condition. A molecular pathway has recently been described in which a protein called PHD2 has been proposed to control red blood cell mass. In young mice, decreasing PHD2 levels by a method known as conditional knockout increases red blood cell mass. Whether this response occurs in aging mice is not known. We will test whether decreasing PHD2 levels in aging mice changes red blood cell mass. We anticipate this study will provide important information for evaluating whether targeting this pathway will afford a potential means to treat anemia in the aging population.

Robert L. Mauck, PhD
School of Medicine, Department of Orthopaedic Surgery
"Age-Dependence of Functional ECM Formation by MSCs for Cartilage Regeneration"

Articular cartilage lines the surfaces of joints and transmits forces generated with physiologic motion. This unique tissue may function well over a lifetime of use, but acute trauma or alterations in joint kinematics can disrupt tissue homeostasis and lead to degenerative changes. As the adult tissue has limited healing capacity, these degenerative changes result in cumulative erosion of the articular layer, or osteoarthritis (OA). OA affects more than 21 million people in the United States, including more than 1/3 of the population over 65. One evolving repair strategy combines chondrocytes (the cells within cartilage) with 3D scaffolds to enable in vitro tissue development. This "tissue engineering" (TE) approach generates replacement constructs that possess biochemical and histological features similar to the native tissue. In addition to chondrocytes, mesenchymal stem cells (MSCs) have been used to populate these same scaffolds. These multi-potential progenitor cells can be induced to differentiate into a chondrocyte-like cell and deposit a cartilage-specific extracellular matrix (ECM). TE constructs generated from either cell type must possess mechanical properties similar to that of the native tissue. Most cartilage TE studies have employed chondrocytes derived from juvenile tissues; few studies have addressed the important relationship between cell age and construct maturation. Recent studies have shown a decline in chondrocyte yield, expansion, and matrix forming capacity when seeded in a TE construct for adult compared to juvenile cells. The potential of MSCs to form tissues with cartilaginous compressive properties comparable to that with primary chondrocytes remains to be determined. We will evaluate the molecular, histological, biochemical, and mechanical features of engineered cartilage formed from fetal, juvenile, and adult chondrocytes and MSCs seeded in a 3D environment. Our data will further define the process of neo-cartilage formation as a function of cell type and aging and will establish new directions in regenerative strategies for cartilage repair.

Giang T. Nguyen, MD, MPH, MSCE
School of Medicine, Department of Family Medicine and Community Health
" Community Connectedness and Depression among Southeast Asian Immigrants in Late Life"

Depression in late life is an area of growing research, and studies addressing the determinants of geriatric depression among Asian Americans are lacking. Southeast Asian immigrants and refugees are at particular risk for depression because of the circumstances surrounding their migration from their countries of origin. Unlike many other Asian Americans, Southeast Asians suffer from particularly high levels of health and socioeconomic disparities; anecdotal evidence suggests that social, linguistic, and cultural isolation plays an important role in the mental health of Southeast Asian immigrant elders. The proposed study uses a Community-Based Participatory Research approach by partnering with a local community-based organization serving (and run by) Southeast Asians. We will assess depressive symptoms and relate these with measures of social connectedness and other demographic characteristics, focusing on linguistically isolated Vietnamese and Laotian elders. The data obtained will aid in the development of larger studies and interventions to address depression among older Southeast Asian immigrants.

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Getting Us Closer to a Cure for Alzheimer's: Frank Rasmus Gives to Accelerate Drug Discovery

We all are motivated by different things in life – even by reading the newspaper's obituary pages. Such is the case for Frank H. Rasmus, Jr., who recently made not one but three generous, outright gifts to the Alzheimer's Disease Fund at Penn's Center for Neurodegenerative Disease Research (CNDR).

Frank, who lost his mother to a painful and protracted battle with Alzheimer's, was inspired by the Philadelphia *Inquirer*'s obituary of Marian Snyder Ware - the Ware family matriarch whose $6 million gift to Penn in 2004 established the Marian S. Ware Alzheimer Program. This joint Penn Medicine and Penn Nursing Science initiative advances drug discoveries, clinical research and patient care related to Alzheimer's disease by enabling researchers and clinicians to coordinate the complex needs of patients and their families.

In addition to various bequests, one in memory of his mother to the Alzheimer's Association, Frank has over 60 charitable gift annuities benefiting 19 organizations. His recent support for CNDR is unique because it was not a planned gift but an 'outright' gift of securities.

Frank's rationale is reflective of his business savvy, disciplined investing, endless compassion and practical philanthropy. He is committed to helping accelerate Penn's drug discovery work for Alzheimer's, and the best way he sees to do that is through outright giving.

Frank states emphatically, "I want to do more now to help advance research to find a cure so we can get a world without Alzheimer's sooner, not later. Waiting is not helping us get to where we want to be in finding a cure or in delaying onset. If we can find a cure more quickly, we will improve the quality of life for millions of people. It's about making charitable gifts that will make a difference!"

Cats, Rats, and Bats: Learning How the Natural World Can Help Humans at the First Annual Cristofalo Lectureship

Nearly 30 years ago, Dr. Vincent J. Cristofalo began the Center for the Study of Aging, now the Institute on Aging, originally seated in the Penn School of Veterinary Medicine. It was Dr. Cristofalo's intent to reach across species and Penn's many schools to first stimulate collaboration among researchers, faculty, and students in the then new field of aging research and secondly to mentor younger researchers and students and encourage their interest - and eventual careers - in the field of aging and aging-related diseases, particularly cellular aging.

On November 27th, the IOA celebrated the spirit and memory of Dr. Vincent J. Cristofalo at the first Vincent J. Cristofalo, PhD, Annual Lectureship. The inaugural event was opened by Dr. John Trojanowski, Director of the IOA, and Dean Joan Hendricks, Penn School of Veterinary Medicine. Dr. Robert Pignolo, a trainee and mentee of Dr. Cristofalo's, offered a personal tribute to Dr. Cristofalo as scientist, mentor, and friend.

Dr. Steve Austad, Professor, Department of Cellular and Structural Biology at the Sam and Ann Barshop Institute for Longevity and Aging Studies at the University of Texas Health Science Center at San Antonio, served as the Inaugural Cristofalo Lecturer. The author of "Why We Age" and an unconventional researcher in comparative biogerontology, Dr. Austad explained how it was that he became involved in the science of aging and how he first encountered Vince Cristofalo, as editor of the *Journal of Gerontology*.

Dr. Austad went on to discuss why it is that we age, the contributions that Dr. Cristofalo made, what animals - particularly those that live in the wild outside of the laboratory - can tell us about the underlying cellular and molecular mechanisms of the aging process and what we can do with that knowledge and the questions it begets.

To watch streaming video of the afternoon's presentations, visit **www.med.upenn.edu/aging/Cristofalo2007.shtml**. You will need Real Player to view the video. Don't forget to mark your calendars with this year's date. Join us on November 11th for the second Vincent J. Cristofalo, PhD, Annual Lectureship.

The Cristofalo family is joined by Dr. Steven Austad, the Inaugural Cristofalo Lecturer, and Dr. Robert Pignolo, IOA Fellow and Event Organizer.

IOA Pilot Research Grants Awarded for 2009

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Richard M. Schultz, PhD

School of Arts and Sciences, Department of Biology

"Live Imaging of Aged-Induced Aneuploidy during Meiosis in Mouse Oocytes"

What constitutes a high-quality egg is a holy grail in reproductive science. Although little is known about how a good egg is generated, minimally it must contain the appropriate chromosome content. An increase in aneuploidy is a major cause for the marked decline in human female fertility commencing at age 35. The incidence of aneuploidy in eggs from women in their 20s is ~2%, but dramatically increases to 35% around age 40, and is likely to be even higher because the source of a spontaneous abortion due to aneuploidy is frequently not recognized. Aneuploidy is a leading cause of pregnancy loss, and when development goes to term, an aggravating source of developmental disabilities and mental retardation. Most age-associated aneuploidies are due to non-disjunction and meiotic errors that occur during meiosis. Remarkably, the underlying molecular mechanisms that lead to the age-associated increase in aneuploidy are poorly understood. Our previous studies suggest defects in the spindle assembly checkpoint (SAC) and kinetochore function are likely causes for the age-associated increase in aneuploidy. Eukaryotic cells have evolved highly conserved mechanisms to ensure that chromosomes attach correctly to the spindle prior to anaphase onset. The SAC is one pathway that prevents segregation errors by blocking the onset of anaphase until all chromosomes make proper attachments. Using mouse as a model system together with imaging of live individual oocytes, we will test the hypothesis that the robustness of the SAC in oocytes decreases with age.

Rachel Werner, MD, PhD

School of Medicine, Division of General Internal Medicine

"Nursing Home Pay-for-Performance in State Medicaid Programs"

Poor quality of nursing home care has been pervasive for decades and major national efforts have been launched to improve the quality of nursing home care. Increasingly, state Medicaid programs are adopting pay-for-performance incentives to improve quality of nursing home care. However, the extent to which states have adopted pay-for-performance and the structure of these pay-for-performance incentives is unknown. This project aims to investigate the extent of adoption of nursing home pay-for-performance by state Medicaid agencies across the country and to describe the structure of those pay-for-performance programs that have been implemented. This project is the first step toward a large-scale evaluation of the impact of pay-for-performance on nursing home quality of care.

IOA Visiting Scholars Series 2008-2009

The IOA Visiting Scholars Series is dedicated to bringing national leaders in aging research, policy, and clinical care to Penn.

Sessions promote interdisciplinary discussion and debate and are free and open to the public. Registration is requested.

Select series lectures are available as podcasts. For information on subscribing to the free podcasts, visit the IOA website at **www.med.upenn.edu/aging**.

Fall, 2008
Mony J. de Leon, PhD
Director, Center for Brain Health and Professor of Psychiatry
New York University
Topic: *Biomarkers for Neurodegenerative Diseases*
Venue: TBA
9-10:30am

October 30, 2008
Lenore J. Launer, PhD
Senior Investigator and Chief, Neuroepidemiology Section, Laboratory of Epidemiology, Demography and Biometry
National Institute on Aging
Topic: *Diabetes and Dementia*
Venue: BRB 2/3 Auditorium
421 Curie Boulevard
3:00 - 4:30pm

November 11, 2008
Vincent J. Cristofalo, PhD, Annual Lectureship
Venue: BRB 2/3 Auditorium
421 Curie Boulevard
3:30-5:30pm

*For more information and updates, visit **www.med.upenn.edu/aging**, or contact us at **aging@mail.med.upenn.edu** or 215-898-3163.*

Awards and Honors
Fellows

Phillips Memorial Award: Dr. Strom

Dr. Brian Strom, Vice Dean for Institutional Affairs in the School of Medicine; Senior Adviser to the Provost for Global Health, and Director of the Center for Clinical Epidemiology and Biostatistics, has been named the 2008 recipient of the John Phillips Memorial Award for Outstanding Work in Clinical Medicine. Given by the American College of Physicians, the award is one of the highest in the field of internal medicine and is conferred for outstanding work in clinical medicine, including all phases of clinical research or practice of medicine.

Under Secretary's Award: Dr. Asch

Dr. David Asch, Robert D. Eilers Professor of Health Care Management and Economics; Professor of Medicine, Health Care Systems, Operations and Information Management and Medical Ethics; Executive Director, Leonard Davis Institute of Health Economics, and Co-Director of the Center for Health Equity Research and Promotion at the Philadelphia VA Medical Center, was honored as the recipient of the 2008 Under Secretary's Award for Outstanding Achievement in Health Services Research. The award is given to a VA researcher whose work has led to major improvements in the quality of veterans' healthcare, has made key contributions to the future of health services research through training and mentorship, and has enhanced the visibility and reputation of VA research.

Franklin Founder Award: Dr. Lee

Dr. Virginia M.-Y. Lee, John H. Ware 3rd Profes-

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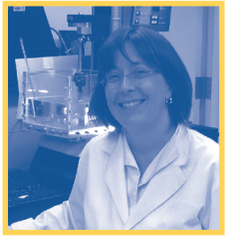
Fellow in the Spotlight

A Conversation with Dr. Dawn Elliott

The IOA Fellows program brings together researchers, clinicians, and educators with varied interests and remarkable achievements in the field of aging. The IOA Fellows are University of Pennsylvania faculty, representing the 12 schools within the University. Associate Fellows represent Penn staff, as well as colleagues from other institutions, who have demonstrated a keen interest in aging-related research, education, or services. The IOA is honored to include nationally-recognized members of Penn's faculty, such as Dawn Elliott, PhD, in the Fellows program.

Dawn M. Elliott, PhD



Associate Professor, Department of Orthopaedic Surgery, Penn School of Medicine
Associate Professor, Department of Bioengineering, Penn School of Engineering and Applied Sciences
Director, Structure-Function Biomechanics Core, Penn Center for Musculoskeletal Disorders

The challenges of keeping the human body, and an aging one at that, structurally sound and in (pain free) motion are precisely the sort that drew Dr. Dawn Elliott from the world of aerospace to academia and bioengineering. Dr. Elliott received her Bachelor's in Mechanical Engineering from the University of Michigan and joined General Electric (GE) as a Design Engineer. After six years, she decided to pursue further studies and became a Research Assistant in the Department of Aerospace Engineering and Engineering Mechanics at the University of Cincinnati, earning her Master's in Engineering Mechanics the following year. She continued with a Research Fellowship in the Department of Biomedical Engineering at Duke University, obtaining her Ph.D. in Biomedical Engineering in 1999. She arrived at Penn later that year.

Dr. Elliott studies the biomechanical function of orthopaedic soft tissues in health, aging, degeneration, injury and healing. She and her lab focus on fiber-reinforced soft tissue mechanics and intervertebral disc degeneration and restoration - although they also study other tissues including tendon, ligament, meniscus, and articular cartilage.

Dr. Elliott is a member of the American Society of Mechanical Engineers, chairing the Solid Mechanics Committee in the Bioengineering Division and is Program Chair for the 2009 Annual Summer Bioengineering Conference. She is a member of the Orthopaedic Research Society and the International Society for the Study of the Spine (ISSLS), which awarded her its Young Investigator Award in 2003 and its ISSLS Prize in Biomechanics in 2008. Dr. Elliott is currently the Principal Investigator for 2 major NIH grants and co-Investigator for a third.

IOA: From designing/working with aircraft engines at GE to engineering soft tissue – what led you to make the transition and obtain your PhD in Biomedical engineering?

DE: I designed aircraft engines for GE for 6 years before returning to graduate school for Bioengineering. The first few years I worked on an "in production" engine and solved problems discovered by manufacturing or by the airline customer; later I helped design a new engine, the GE90, which has now been flying the Boeing 777 for several years. My time at GE was wonderful; however, I missed the opportunity for creativity and self-directed intellectual pursuit. Also, I just wasn't excited about the engineering challenges in engines compared to those in the human system.

IOA: You've done research with canines, sheep, mice and most recently rats. How are these animal models helpful to your research?

DE: Animal models are an essential part of biomedical research. My research is informed by using in vivo animal models, human and animal cadaver tissue, and mathematical models to understand how the intervertebral disc works, what goes wrong in degeneration, and to develop and test interventions. One of the limitations in disc research is there is no good animal model that replicates the human degenerative process; one of our research goals is to develop such a model, and the IOA Pilot grant contributed significantly toward that aim. In that project, we used an enzyme to break down the glycosaminoglycan in the rat disc, mimicking early degenerative effects in humans. We have also performed a series of studies comparing the discs of several animal species, from mouse to baboon, to the human disc in order to assess the strengths and weaknesses of each model.

While no animal model is perfect, knowledge of how they compare to the target system helps in designing an appropriate study that will result in data that are useful. Our laboratory has decided to focus on the rat and the sheep models to study disc degeneration. We need to utilize both scale levels because while the rat is very useful for some biological studies, the larger size of the sheep is sometimes needed to evaluate surgically relevant interventions. I'm often asked whether these quadrupeds are appropriate to study the disc, since humans walk upright. Interestingly, biomechanical analyses of loading in quadrupeds reveal that the muscle forces along the spine place large compression forces on the disc, often even higher than the human case. The bigger limitation is that most quadrupeds do not bend or twist their spines as much as humans. The alligator and crocodile do a lot of twisting although we haven't tried to get Institutional Animal Care and Use Committee approval to study them yet!

IOA: The primary focus of your research is the intervertebral disc. How did you come to focus on this area of the body?

DE: I am fascinated by all of the orthopaedic soft tissues as mechanical systems - their fiber reinforced structures are amazing designs that allow for both stability and movement within a single material. All of these tissues (disc, cartilage, tendon, ligament, meniscus) have similar concerns with aging and degeneration and also a limited capacity to heal following injury. I focus on the intervertebral disc because of the major societal problem of low back pain. Loss of disc mechanical function and advancing degeneration with age is a critically important problem that I hope to contribute toward solving.

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Awards and Honors

sor in Alzheimer's Research; Director of the Center for Neurodegenerative Disease Research; Professor, Pathology and Laboratory Medicine, and Co-Director of the Marian S. Ware Center for Alzheimer's Drug Discovery Program, was honored as a recipient of the 2008 Franklin Founder Award from the Friends of Franklin, Inc, for her work as an 'internationally recognized' woman of science.

Murray Prize: Dr. Mitchell

Dr. Olivia S. Mitchell, International Foundation of Employee Benefit Plans Professor; Professor of Risk Management and Business and Public Policy; Executive Director, Pension Research Council, and Director, Boettner Center for Pensions and Retirement Research, received the 2008 Roger F. Murray Prize from The Institute for Quantitative Research in Finance for her paper, "Demographics and Finances of Baby Boomers." Dr. Mitchell also was awarded the Fidelity Research Institute Pyramid Prize for her research, with Professor Annamaria Lusardi of Dartmouth College, which was published as "Baby Boomer Retirement Security: The roles of planning, financial literacy and housing wealth."

American Academy of Political and Social Science Fellow: Dr. Preston

Dr. Samuel Preston, Professor of Demography and former School of Arts and Sciences Dean, was one of six scholars inducted as a Fellow of the American Academy of Political and Social Science. AAPSS was founded in Philadelphia in 1884 to promote the progress of the social sciences knowledge in the development of public policy.

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Awards and Honors

Professor of Nursing: Dr. Riegel

Dr. Barbara J. Riegel is being promoted to Professor of Nursing, effective July 1st. Dr. Riegel's research focuses on management of patients with heart failure

Outstanding Alumni Researcher Award: Dr. Stineman

Dr. Margaret Stineman, Professor, Vice Chair and Director for Research, Department of Physical Medicine and Rehabilitation, was honored by Drexel University with the Outstanding Alumni Researcher Award. Dr. Stineman's research interests here at Penn include disability with regards to aging and evaluation with the goal of improving the lives of people with disabilities by facilitating collaborative research training programs and research across all disciplines involved in their care.

American Academy of Nursing: Dr. Bowles

Dr. Kathryn Bowles, Associate Professor of Nursing, was admitted to the American Academy of Nursing. Dr. Bowles' research focuses on decision-making and the development of decision support for hospital discharge referral decisions, telehealth technology, quality of life among frail elders, intervention research to close the health care racial divide, and the use of large databases in home care to support clinical decision-making.

Dean's Award: Dr. Sochalski

Dr. Julie Sochalski, Associate Professor of Nursing, was selected to

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Meet the Board

The Institute on Aging External Advisory Board is comprised of dynamic and dedicated individuals from all walks of life who share a common goal - to improve the quality of life for older adults. Meeting several times a year, this body of informed, hands-on volunteer advisers is instrumental in forwarding the mission of the Institute on Aging.

The Institute on Aging is honored to include Daniel Perry among the External Advisory Board members.

Daniel P. Perry

For more than two decades, Dan Perry has followed and helped to guide advances in aging-related medical and scientific research. His professional background spans a wide range of health policy, governmental, political and journalistic experience, including a nomination for the Pulitzer Prize. This diverse experience singularly informs his role as the Executive Director of the Alliance for Aging Research. Founded in 1986, the Alliance is the nation's leading citizen advocacy organization for supporting and accelerating the pace of medical discoveries to improve the universal human experience of aging and health and is located in Washington, D.C.

Mr. Perry amassed his political experience during his tenure of more than a dozen years on Capitol Hill, holding staff positions that included Special Assistant to the Majority Whip of the U.S. Senate. During the first Bush Administration, he was appointed to the Federal Task Force on Aging Research. He was then named by President Clinton to the Advisory Board of the White House Conference on Aging and served as a delegate to both the 1995 and the 2005 White House Conferences on Aging.

Mr. Perry's involvement as an adviser and participant in these government efforts to help shape government policy energizes his advocacy efforts on behalf of aging-related medical research. He serves as Chairman of the ACT-AD Coalition (Accelerate Cure/Treatments for Alzheimer's Disease), comprised of some 50 member organizations, that is working for clear and appropriate standards at the Food and Drug Administration for reviewing and approving a new generation of Alzheimer's drugs. Recognizing the critical role of funding from the NIA (and its parent agency, the NIH) in aging research, Mr. Perry also helped to form and chairs the multi-organization Friends of the National Institute on Aging. He is past President and currently Vice President and Director of the Coalition for the Advancement of Medical Research (CAMR), leading over 100 U.S. patient groups, medical organizations and research universities in the fight to advance stem cell research and regenerative medicine. Mr. Perry is also a member of the New York Academy of Sciences.

His relationship with the IOA extends back to the late 1980s when the Alliance for Aging Resarch was instrumental in raising funds for the IOA, then under the leadership of Dr. Vince Cristofalo, from what was then the SmithKline Beecham Corporation. Not long after, Drs. John Trojanowski and Virginia Lee were among the first recipients of a

national award for outstanding research in aging from the Alliance and underwritten by Allied Signal Corporation. The three colleagues remained in contact as Drs. Trojanowski and Lee helped Mr. Perry and the Alliance evaluate and select later awardees.

In 2003 in recognition of his unique background and his role as a frequent speaker on aging research and public policy topics before business, academic, and public sector audiences, Mr. Perry was invited to join the IOA's External Advisory Board. In a bit of an experience exchange, Dr. Trojanowski has also served many years as one of a select few scientific advisors to the Alliance.

Mr. Perry describes his role of an IOA External Advisory Board member as that of a connector, keeping the IOA engaged and connected to the full range of U.S. public policy and funding realities surrounding aging-related medical research. He also contributes his newspaper journalism and media expertise and guidance as the IOA works to project its message and image far beyond Penn's campus.

When asked his advice about what people can do to support aging research and the IOA, Mr. Perry encourages all not to underestimate the importance of contacting one's congressional and state representatives. Beyond writing letters - or emails - to local lawmakers, meetings targeted to the leadership of committees and caucuses with a role in medical and scientific matters can yield important results. Participating effectively on coalitions such as ACT-AD Coalition and the Friends of the NIA (the IOA is a member of both) can also help support and give voice to public policies favorable to the growth and success of aging research.

In sponsoring Capitol Hill briefings for interested policymakers, Congressional staff, journalists and other health advocates, Mr. Perry and the Alliance have drawn upon faculty and other experts associated with IOA on more than one occasion. There are opportunities to monitor committee hearings that explore issues in depth, and these hearings are always in need of authoritative voices, from institutions like the IOA, to speak out for research as an official witness. (See page 15 for more on IOA Fellow Dr. Jason Karlawish and the U.S. Senate Special Committee on Aging.) Ever the newspaperman, Mr. Perry reminds us that the opinion pages of newspapers and forums on television, radio and the Internet remain excellent ways to bring messages into the larger policy discussion.

When asked if he is optimistic about the future of aging research, Mr. Perry responds with a resounding 'Absolutely!' He says he has never seen a more propitious time for world-changing new insights to emerge from this field. As America's baby boomers rapidly close in on retirement age, they are eager for lives that will be fuller, healthier and more engaged in their communities. Meanwhile, lawmakers to date can best be characterized as the proverbial 'deer caught in headlights' concerning the coming higher costs of healthcare driven by an increasingly older population. The real possibility that science may soon find the means to influence mechanisms of aging, and thus defer risks (both medical and financial) of several age-related chronic illnesses at once, is a potent message that could transform 21st century health promotion and disease prevention.

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Awards and Honors

receive the Dean's Award for her development of a truly exceptional learning and humanitarian experience: a clinical nursing segment in Pearlington, MS, to respond to the aftermath of Hurricane Katrina.

American Academy of Nursing: Dr. Coleman

Dr. Christopher Coleman, Assistant Professor of Nursing and Assistant Professor of Nursing in Psychiatry, was admitted to the American Academy of Nursing. Dr. Coleman's research centers on the study of HIV-related risk behaviors in African American men, middle-aged and older.

FTD Grant: Dr. Taylor

Dr. J. Paul Taylor, Assistant Professor of Neurology, was awarded a $60,000 research grant from the Association for Frontotemporal Dementias. Dr. Taylor will apply the award to expand his research work with the fruit fly model for TDP-43-related Frontotemporal dementia (FTD).

Thompson Prize: Dr. Werner

Dr. Rachel Werner, Assistant Professor of Medicine, Division of General Internal Medicine, received the John D. Thompson Prize for Young Investigators from the Association of University Programs in Health Administration (AUPHA). The Thompson Prize recognizes young investigators based on their contributions to the health services research literature.

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Awards and Honors

Career Award and Clinician-Scientist Fellowship: Dr. Chen-Plotkin

Dr. Alice Chen-Plotkin, Postdoctoral Fellow at the Center for Neurodegenerative Disease Research (CNDR), received both the Career Award for Medical Scientists from the Burroughs Wellcome Fund and the 2008 Clinician-Scientist Development Fellowship Award from the American Academy of Neurology (AAN) Foundation and the ALS Association. The Career Award for Medical Scientists provides $700,000 over five years. The AAN Foundation/ALS Association Clinician Scientist Development Fellowship provides a two-year, $160,000 fellowship and is part of the ALS Association's TREAT ALS™ program.

Associate Fellow and CNDR Research Colleague Honored

Manuela Neumann, MD, Center for Neuropathology and Prion Research, Ludwig-Maximilians University, Munich, Germany, was honored recently with the 2007 Hirnliga Research Award from Hirnliga e.V., a non-profit organization which funds Alzheimer's and dementia research in Germany. Dr. Neumann was recognized for her leading role in the recent publication, "Identification of TDP-43 as disease protein in frontotemporal dementia and amyotrophic lateral sclerosis." The findings were made through research conducted while she served as a Visiting Scholar at Penn's CNDR. "John and I are extremely pleased that Manuela received the Hirmliga award in recognition of her important discovery identifying the disease protein in ALS and FTD when she was at CNDR. This opens up an entirely new area of research in neurodegenerative diseases," says Dr. Virginia M.-Y. Lee, Director of CNDR.

Ongoing Studies in Aging Research: Participants Needed

Moving information from the laboratory to the clinic and American homes, lives, and doctors' offices is the ultimate goal of research, but it can't happen without the involvement of study participants - those already diagnosed with a disease or disorder and those who serve as 'normal controls.' To learn more, please contact those listed.

NMR Imaging and Stereological Analysis of Trabecular Bone in Female Subjects 60 and Older at Risk of Fracture Receiving Either Zoledronic Acid (Reclast®) or Teriparatide (Forteo™)

The University of Pennsylvania Health System/Division of Endocrinology seeks women at least 60 years of age who have been told they need treatment for osteoporosis or who have had a bone fracture from osteoporosis for a research study. Felix W. Wehrli, PhD, Professor of Radiologic Science, Department of Biochemistry and Biophysics, and Peter J. Snyder, MD, Professor of Medicine, Division of Endocrinology, Diabetes & Metabolism, are the Principal Investigators.

Women who are interested will be evaluated by bone densitometry and MRI. Women who qualify will receive treatment with an osteoporosis medication for two years and compensation for travel. Please contact Terry Scattergood, RN, MSN, at 215-898-5664 for more information.

Studies in Parkinson's Disease for Veterans

The Philadelphia VA Parkinson's Disease Research, Education, and Clinical Center (PADRECC) has constructed a comprehensive research program that addresses all aspects of Parkinson's disease (PD) with a focus on non-motor complications and a 'protein to person' inclusiveness. PADRECC researchers have attained international recognition as experts in the pathobiology of PD as well as the diagnosis and treatment of associated depression, dementia, and impulse control disorders. The Center continues to advance its clinical studies of neuropsychiatric complications as well as olfactory dysfunction as a biomarker of PD, urinary tract symptoms, and falling risk factors.

Parkinson's Disease Research, Education & Clinical Center

For additional information on services offered at the PADRECC, please call 215-823-5934 or visit our website at **www.parkinsons.va.gov**.

Genetic Studies in Neurodegenerative Diseases

The purpose of these studies is to better understand the genetic basis for neurodegenerative diseases, such as Alzheimer's disease and other forms of dementia. Knowledge gained from genetic research studies is important for the development of improved diagnostic tests and new

therapies. Participation in a genetic research study typically involves a one-time visit with a genetic counselor. During the visit, the genetic counselor will collect family history information and a blood sample. The blood sample is used in the research laboratory to study an individual's DNA for genes that could potentially either cause disease or influence an individual's risk for disease.

The University of Pennsylvania has several genetic research studies available for interested patients and their families. Individuals with a clinical diagnosis of any of the following conditions are currently eligible to participate: Alzheimer's disease; Frontotemporal Degeneration (FTD); Dementia with Lewy Bodies; Parkinson's disease, or Amyotrophic Lateral Sclerosis (Lou Gehrig's disease).

For more information about genetic research studies, please contact Beth Wood at **mccarty@mail.med.upenn.edu** or by telephone at (215) 662-6014.

A Conversation with Dawn Elliott...

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IOA: Beyond your research, what is your invovlement in training graduate students and post-doctoral fellows in musculoskeletal research?

DE: In addition to performing exciting research, one of the most satisfying aspects of my job is mentoring students at all levels. As in most research laboratories, the primary investigator gets most of the credit, but the students do most of the work! My job is to teach them how to do rigorous research from the initial concept through to oral and written presentation. It is so much fun to watch their development and growth through this process! Hopefully they will go on to be successful both in academics and industry and intensify the impact of our work toward improving human health.

In Memoriam...

The IOA lost two friends this past year. Ed Horen was dedicated to the IOA and gave countless hours to coordinating many an IOA Annual Retreat in the late 1990s. Lisa Randolph, who passed away in December 2007, served as a freelance writer and contributor to the IOA newsletter, helping to launch the newsletter and establish its focus.

Keeping Their Voice: Talking about Voting and Older Americans

In January, the U.S. Senate Special Committee on Aging held a hearing on older Americans and the considerable barriers they face in exercising their right to vote. Dr. Jason Karlawish, Associate Professor of Medicine and Medical Ethics, IOA Fellow, and Director of the Penn ADC Education Core, was invited to testify before the Committee.

Dr. Karlawish recommended that the U.S. develop a model for mobile polling to improve voting access. This is especially important for those residing in long-term care facilities as twenty-nine U.S. states currently do not have voting guidelines to accommodate residents of long-term care (LTC) facilities. "Our surveys of Philadelphia and Virginia show that in states without guidelines for voting in long-term care, access to the polls is largely determined by the practices and attitudes of the LTC staff," says Dr. Karlawish. Successful models of mobile polling currently exist in Australia, where Dr. Karlawish observed elections in November, and in Canada, where it is the norm. Dr. Karlawish also proposed that the U.S. Election Assistance Commission (USEAC) conduct research to develop best voting practices for LTC facilities, implementation training for election officials, and partnerships between the USEAC and states to test and refine the practices.

"Elderly voters – especially who live in long-term care settings – are at the mercy of others when it comes time to exercising their right to vote," explains Dr. Karlawish. "Mobile polling means election officials (or equivalents) visit LTC facilities prior to registration deadlines to encourage registrations. It also means directly distributing ballots to facility residents, assisting with voting, collecting ballots and ensuring their return to a polling site." For more on the studies conducted by Dr. Karlawish and his colleagues, visit **www.pennadc.org**.

UPCOMING EVENTS: CRISTOFALO LECTURESHIP AND CNDR ANNUAL RESEARCH RETREAT

NOVEMBER 11TH & 20TH

save the dates

Vincent J. Cristofalo, PhD Annual Lectureship

Join us on November 11th as we celebrate the spirit and continue the research of our colleague, mentor, and friend, Dr. Vincent Cristofalo:

3:30 - 5:30pm
Biomedical Research Bldg. 2/3 Auditorium
421 Curie Boulevard
University of Pennsylvania

This year's Cristofalo Lecturer is **Judith Campisi, PhD**, Senior Scientist at the Lawrence Berkeley Labs and Professor at the Buck Institute for Age Research.

She is internationally known for her work on the role of cellular senescence in aging and cancer. Dr. Campisi's laboratory studies the evolutionary, cellular and molecular relationships between aging, tumor suppressor mechanisms and the development of cancer, as well as nuclear structures such as telomeres, and nuclear processes such as DNA repair and transcription to understand how genetic and epigenetic damage leads to aging and cancer phenotypes. They are also working to identify links between mitochondrial function and cellular responses that can affect aging phenotypes and age-related diseases in tissues and organisms.

CNDR 8th Annual Marian S. Ware Research Retreat

The Center for Neurodegenerative Disease Research will hold its annual research retreat on November 20th. The focus for 2008 is the "Genetics of Neurodegenerative Diseases."

8:00am - 5:00pm
Biomedical Research Bldg. 2/3 Auditorium

Scheduled speakers from Penn include **Vivianna Van Deerlin, MD, PhD**, and **Jerry Schellenberg, PhD**, from the Penn School of Medicine, as well as **Hakon Hakonarson, MD, PhD**, Director, Center for Applied Genomics at Children's Hospital of Philadelphia.

CNDR will also welcome **Christine van Broeckhoven, PhD**, Scientific Director, Department of Molecular Genetics at the University of Antwerp and Flanders Institute for Biotechnology; **Andrew Singleton, PhD**, Senior Investigator and Chief, Molecular Genetics Section at the National Institute on Aging's Laboratory of Neurogenetics, and **Michael Boehnke, PhD**, Richard G. Cornell Collegiate Professor of Biostatistics and Director, University of Michigan Center for Statistical Genetics and Genome Science Training Program.

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