



Understanding Aging, Combating Disease, Improving Life: America's Medical Schools and Teaching Hospitals

In the past century, life expectancy has nearly doubled. Today there are 35 million Americans age 65 and older. By 2030, this population group will likely double. More elderly Americans will present an array of health care and research challenges and opportunities in the decades to come.

Most notably, today, some 4.5 million Americans have Alzheimer's disease, the leading cause of dementia in people over the age of 65. By 2050, the number of Americans with Alzheimer's is expected to triple to an estimated 13.2 million people.

For more than 60 years, America's medical schools and teaching hospitals have teamed up with the National Institutes of Health (NIH) to improve the health of all Americans, throughout their lives. Their research efforts have resulted in important advances in understanding the normal process of aging and in better diagnoses, treatment and even prevention strategies for many of the diseases that affect the elderly, particularly Alzheimer's disease.

Listed on these pages are a few of the many examples of research progress by NIH-funded investigators and scientists at medical schools and teaching hospitals on aging, Alzheimer's, and other diseases that affect the elderly. To learn more about these and other advances, go to www.aamc.org/innovations

2005

Researchers found that loss of body mass over time is related to older adults' risk of developing Alzheimer's disease. These findings, the first link discovered between body mass and Alzheimer's, established that the greater the loss of body mass, the greater the chance of a person developing the disease.

Rush University Medical Center

NIH Funded

Researchers identified changes in the blood platelets of Alzheimer's disease patients, indicating that platelets may serve a useful way to monitor drug efficacy in clinical trials.

Univ. Texas Southwestern Medical Center/Gambro Center, TX

NIH Funded

Researchers pinpointed the first major gene, called complement factor H (CFH), to determine an individual's risk for developing age-related macular degeneration (AMD). The gene is estimated to be responsible for 43 percent of the risk of AMD among older adults. The advance sheds light on the mechanisms underlying the disease and could lead to new avenues for treatment. It may also help to identify those at risk, earlier.

Duke University School of Medicine
Vanderbilt University Medical Center
NIH Funded

This year, for the first time in history, researchers at University of Minnesota Medical School were able to reverse memory loss in mice with significant brain degeneration. By turning off a specific gene, the mice's symptoms of dementia not only stopped, they were reversed.

University of Minnesota Medical School
NIH Funded

2004

Amid ongoing efforts to find new drugs to treat Alzheimer's disease and related brain disorders, researchers at the University of Pennsylvania School of Medicine discovered that paclitaxel (Paxceed), a potent anticancer drug, increases the function of nerve cells in mice with neurodegeneration.

University of Pennsylvania School of Medicine
NIH Funded

Researchers at the Medical University of South Carolina College of Medicine discovered a class of drugs that blocks activation of inflammatory cells, which may be used to treat conditions caused by inflammation of the brain or spinal cord, such as Alzheimer's disease, stroke, and multiple sclerosis.

Medical University of South Carolina College of Medicine
NIH Funded

Researchers identified two new locations, and confirmed three previously known locations, in the human genome implicated in age-related macular degeneration, or progressive vision loss.

University of Michigan Medical School
University of Pennsylvania School of Medicine
NIH Funded

Researchers discovered a novel amyloid-imaging positron emission tomography (PET) tracer, called Pittsburgh Compound B (PIB). PIB will enable researchers to define the role of amyloid plaques in the development of Alzheimer's development and may someday help identify those at risk of the disease.

University of Pittsburgh School of Medicine
NIH Funded

2003

Researchers identified a single gene, GSTO1, that influences the age at which individuals develop symptoms of Alzheimer's and Parkinson's diseases.

Duke University School of Medicine

NIH Funded

Scientists determined that Zoloft, a drug commonly used to treat depression, also improves quality of life and alleviates disruption in daily activities of Alzheimer's patients who also suffer from major depression.

Johns Hopkins University School of Medicine

NIH Funded

A patient at Weill Medical College of Cornell University received the first-ever gene therapy for Parkinson's disease.

Joan and Stanford I. Weill Medical College of Cornell University

NIH Funded

National Age-Related Eye Disease Study estimated that if every American at risk of advanced age-related macular degeneration took daily supplements of antioxidant vitamins and zinc, more than 300,000 people could avoid vision loss over the next five years.

Johns Hopkins University School of Medicine

NIH Funded

2002

Researchers uncovered a link between gait disorders and non-Alzheimer's dementia in older people. Seniors with neurological gait abnormalities were at increased risk—nearly two to one—for developing dementia.

Albert Einstein College of Medicine of Yeshiva University

NIH Funded

2001

Researchers found that the enzyme COX-2 causes mice to develop memory problems as they age, mimicking Alzheimer's disease. COX-2 is also linked to loss of brain cells in animal bodies, including Parkinson's and Lou Gehrig's diseases.

Johns Hopkins University School of Medicine

NIH Funded

2000

Researchers reported that memory loss from minor strokes deep in the brain could now be distinguished from that caused by mild Alzheimer's disease.

University of California, Davis, School of Medicine

NIH Funded

1997

Researchers found that different Alzheimer's disease genes cause the same problem in the mouse brain. The amyloid plaques that form in the brains of Alzheimer's disease patients are not the end products of the disease but the beginning of it.

Johns Hopkins University School of Medicine

NIH Funded

Researchers found that vitamin E and an anti-Parkinson's disease drug can significantly delay the progress of Alzheimer's disease. This finding was the first to show the impact of vitamin E on brain aging.

University of California, Irvine, College of Medicine
NIH Funded

Scientists discovered why proteins fold properly, which may lead to treatments for diseases such as Alzheimer's, Huntington's, and Parkinson's—which are related to proteins that do not fold properly.

Yale University School of Medicine
NIH Funded

1996

Researchers discovered that a glitch with the protein, presenilin, may be an early problem in inherited Alzheimer's disease.

Johns Hopkins University School of Medicine
NIH Funded

Researchers developed a mouse model of Alzheimer's disease by inserting an Alzheimer's gene directly into the mouse's genetic material. The animal developed many of the same problems that patients with Alzheimer's disease experience.

University of Minnesota Medical School
NIH Funded

1995

Scientists introduced the concept of geriatric syndromes as health conditions common among older adults that result from multiple coexisting impairments. For example, the problem of dizziness in elderly people is more often a result of multiple problems—described as a “geriatric syndrome”—than a symptom of a particular illness.

Yale University School of Medicine
NIH Funded

1993

Researchers discovered that that Apolipoprotein E (ApoE) is a major genetic risk factor for Alzheimer's disease. People who inherit a version of the ApoE gene—the version known as E4—are at significantly increased risk for developing Alzheimer's disease later in life. E4 is related to half of all late onset Alzheimer's disease cases.

Duke University School of Medicine
NIH Funded

1988

Investigators determine that falling, long considered an inevitable consequence of aging, is a diagnosable health condition that results from the effect of multiple impairments and diseases acting together.

Yale University School of Medicine
NIH Funded

For more information about how medical schools and teaching hospitals are fulfilling the promise of medical research, go to: www.aamc.org/research/ftp