DEPARTMENT OF HEALTH AND HUMAN SERVICES

NATIONAL INSTITUTES OF HEALTH

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defined and measured. However, scientists agree that unless the disease can be effectively treated or prevented, the numbers will increase significantly if current population trends continue.

At the same time, there has never been greater cause for optimism. In recent years, we have expanded our understanding of how the disease takes hold and progresses, identified promising targets for intervention, and developed new models to speed discovery. For example, researchers have developed a mouse model that expresses human tau, one of ADôs pathological hallmarks, and discovered that tau pathology is transmitted from cell to cell, beginning in the brainôs entorhinal cortex and spreading from one brain region to the next. This discovery provides insight into ADôs earliest development and offers a model for testing mechanisms and functional outcomes associated with disease progression. In another study, investigators ñreprogrammedò human skin cells into induced pluripotent stem cells, which then differentiated into working neurons; this breakthrough will facilitate the study of AD in human neurons and provide important insight into the etiology of the disease.

Advances in imaging technology, most notably through the NIH-supported Alzheimerôs Disease Neuroimaging Initiative (ADNI), have expanded our ability to understand the underlying pathology of AD, diagnose the disease, track the progress of interventions, and even identify individuals at risk. ADNI data were also used last year to develop new, more comprehensive diagnostic guidelines at both the clinical and pathological levels.

NIH currently supports over 35 clinical trials, including both pilot and large scale trials, of a wide range of interventions to prevent, slow, or treat AD and/or

cognitive decline; over 40 compounds are in preclinical development through the AD

NIA initiatives on the molecular mechanisms of aging, from in-depth study of single cells to the broad study of organisms at the systems level, continue to advance our understanding of the basic underpinnings of the aging process. For example, investigators recently found that it was possible to delay onset of age-related changes in the skeletal muscle, fat, and eye tissues in mice by

Studies have shown that regular physical activity can improve physical performance in older people, but definitive evidence that physical activity can prevent mobility disability is lacking. The NIA supports the Lifestyle Interventions and Independence for Elders Study to assess the effects of a structured physical activity program in 1,600 sedentary older individuals. With the U.S. Surgeon General, the NIA has also launched its nationwide *Go4Life* campaign to motivate older Americans to engage in physical activity and exercise.

In the past year, preliminary results were released from the ñOregon Lotteryò study, in which randomly-selected low-income Oregon residents were able to enroll in the stateôs Medicaid program.

Richard J. Hodes, M.D.

Director, National Institute on Aging

Richard J. Hodes, M.D., directs the research program of the National Institute on Aging (NIA) at the National Institutes of Health. A leading immunologist, Dr. Hodes was named Director of the NIA in 1993, to oversee studies of the basic, clinical, epidemiological and social aspects of aging.

Under Dr. Hodesô stewardship, the NIA budget has surpassed $1 billion, reflecting increased public interest in aging as America and the world grows older. Dr. Hodes has devoted his tenure to the development of a strong, diverse, and balanced research program, focusing on the genetics and biology of aging, basic and clinical studies aimed at reducing disease and disability, including Alzheimerôs disease and age-related cognitive change, and investigation of the behavioral and social aspects of aging. Ultimately, these efforts have one goal -- improving the health and quality of life for older people and their families.

In the past decade, the NIA has worked in new and innovative ways to conduct research and to translate research findings into practical interventions and public information. In biology, research conducted and supported by the NIA examines the genetic and other factors influencing lifespan and age related diseases and conditions. Research in geriatrics is uncovering new ways to combat frailty with age, and social and demographic research is deepening understanding of the individual behaviors and

societal decisions that affect well-being. In Alzheimerôs disease (AD), new initiatives to find genes involved in AD and to identify biomarkers are expected to considerably reduce the length and cost of clinical trials, thereby speeding up the testing of new therapies for AD.

Dr. Hodes is a graduate of Yale University and received his M.D., from Harvard Medical School. He completed training in Internal Medicine at Massachusetts General Hospital and in Oncology at the National Cancer Institute. Dr. Hodes is a Diplomate of the American Board of Internal Medicine. In 1995, he was elected as a member of The Dana Alliance for Brain Initiatives; in 1997, he was elected as a Fellow of the American Association for the Advancement of Science; and in 1999, he was elected to membership in the Institute of Medicine of the National Academy of Sciences.

Dr. Hodesô research laboratory in the National Cancer Institute focuses on the cellular and molecular mechanisms that regulate the immune response, with major fields of current emphasis in: 1) the function of costimulation in T and B cell lineage development and function, and 2) regulation of telomere length, and its functional consequences, in both human and mouse model systems. Additional background is available at the lab's website, http://ccr.cancer.gov/Staff/Staff.asp?StaffID=472.