Contact: Maureen O'Leary
news@nas.edu
202-334-2138
The National Academies

Keck Futures Initiative awards $1M for 15 research projects

Research will explore topics ranging from engineering solutions to extend human healthspan to developing socially assistive robotics for physical and cognitive health

WASHINGTON -- The National Academies Keck FUTURES INITIATIVE announced today the recipients of its 2007 FUTURES grants, each awarded to support interdisciplinary research on aging and healthspan -- the period of life that is free from serious or chronic illness. The 15 projects chosen represent a wide range of approaches to such research, which was the subject of the fifth annual FUTURES conference, "The Future of Human Healthspan: Demography, Evolution, Medicine, and Bioengineering," held last November in Irvine, Calif. A summary of the conference, which explores challenges in this field and possible solutions, is available online at www.keckfutures.org.

John W. Rowe, M.D., professor of health policy and management, Columbia University, New York City, and the conference chair, said, "We received many bold and innovative proposals and believe we have selected the most promising research projects to pursue."

These competitive seed grants aim to fill a critical gap for research on new ideas. Major federal funding programs do not typically provide support in areas that are considered risky or unusual. The FUTURES grants allow researchers to start recruiting students and postdoctoral fellows, purchasing equipment, and acquiring preliminary data – all of which can position the researchers to compete for larger awards from other public and private sources.

Established through a $40 million grant from the W.M. Keck Foundation in 2003, the National Academies Keck FUTURES INITIATIVE is a 15-year effort to enhance communication among researchers, funding agencies, universities, and the general public – with the objective of stimulating interdisciplinary research at the most exciting frontiers. The National Academies and the W.M. Keck Foundation believe considerable scientific progress and social benefit will be achieved by providing a counterbalance to the tendency to isolate research within academic fields. The FUTURES INITIATIVE is designed to enable researchers from different disciplines to focus on new questions and entirely new research, and to encourage better communication among scientists as well as between the scientific community and the public.

The award recipients and their grant research topics are:

STEVEN AUSTAD, University of Texas Health Science Center, San Antonio
DAVID J. WATERS, Purdue University, West Lafayette, Ind.

WORKSHOP ON THE DEVELOPMENT OF DOGS AS ANIMAL MODELS FOR THE STUDY OF EXTENDED HEALTHSPAN - $25,000
These researchers will hold a workshop with experts in basic aging research, canine genomics, epidemiology, pathology, and the assessment of canine health, to develop a research plan to study dogs and breed differences for animal models of extended healthspan.

LAZELLE BENEFIELD, University of Oklahoma Health Sciences Center, Oklahoma City
GEORGE DEMIRIS, University of Washington, Seattle
TAMARA HAYES, JEFFREY KAYE, and MISHA PAVEL, Oregon Health & Science University, Portland

MARGARET PERKINSON, St. Louis University
ELAINE WITTENBERG-LYLES, University of North Texas, Denton

TECHNOLOGY-ENHANCED INTERVENTIONS FOR DISTANCE CAREGIVING OF OLDER ADULTS: AN INTERDISCIPLINARY APPROACH - $50,000
This project will explore information and communication technology solutions to support long-distance caregiving. The researchers will develop the long-term research agenda to assess human-technology interface within an aging-in-place model.

BAMBI BREWER, SUJATA PRADHAN, and ANTHONY DELITTO, University of Pittsburgh

ROBOTIC ASSESSMENT FOR QUANTIFICATION OF PRECLINICAL SYMPTOMS OF NEURODEGENERATIVE DISEASE - $75,000
These researchers will use robotic technology to develop methods to measure early symptoms of degenerative diseases like Parkinson's disease. Such tools could increase the human healthspan by accelerating the development of drug treatment and allowing early diagnosis of these diseases once effective treatment is available.

EILEEN CRIMMINS, University of Southern California, Los Angeles

HUMAN LIFESPAN AND HEALTHSPAN ACROSS TIME AND SPACE - $75,000
This project will estimate the healthspan or life without physiological dysregulation and impaired functioning in a number of populations that span time and space. The information gathered will be used in models that clarify the effects of changing physiological, social, and behavioral characteristics on future healthspan.

DIDDAHALLY GOVINDARAJU, Boston University School of Medicine
STEVE N. AUSTAD, University of Texas Health Science Center, San Antonio
NIR BARZILAI, Albert Einstein College of Medicine, Bronx, New York City
CHARLES LEE, Harvard Medical School, Cambridge, Mass.

COPY NUMBER VARIATION AND EXCEPTIONAL HUMAN HEALTHSPAN: THE ASHKENAZI CENTENARIANS - $87,500
Human genomic length variation ranging from 500bp to 5 Mb, also known as structural or copy number variation (CNV), has been shown to influence complex traits including longevity and diseases. These researchers will investigate this influence by a genome-wide survey of CNVs in relation to longevity among the Ashkenazi centenarians.

CHRISTINE GRANT, North Carolina State University, Raleigh
ANATOLI I YASHIN, KEITH MEADOR, and ELIZABETH ANN GERKEN HOOTEN, Duke University, Durham, N.C.
KHALED SALEH, University of Virginia, Charlottesville
SARA PECKHAM, Wellness Consultant, Cleveland

PARADIGM SHIFT TOWARD POSITIVE HEALTH AND HEALTHSPAN OUTCOMES - $50,000
This project will bring together experts from many fields including orthopedic medicine, biomedicine, and spiritual, wellness, to focus on how orthopedic events will enhance orthopedic medicine and foster health care personnel diversity, facilitating culturally competent care.

SCOTT HOFER, Oregon State University, Corvallis
JEFFREY KAYE, Oregon Health and Science University, Portland
ILENE C. SIEGLER, Duke University, Durham, N.C.
AVRON SPIRO, Boston University

HEALTH AND HEALTHSPAN IN LONGITUDINAL STUDIES OF AGING - $75,000
These researchers will hold a conference to better understand age-related health changes by

evaluating measurement and modeling approaches. Using current longitudinal studies of aging, participants will compare the various models, measures, and methods of assessing health and provide an empirical basis for harmonizing existing measures, suggesting novel ones, and eventually integrating health information from new and ongoing longitudinal studies across disciplines.

KENNETH MANTON, Duke University, Durham, N.C.

PLATEAUS IN HUMAN MORTALITY AND DISABILITY DYNAMICS AT ADVANCED AGES - $87,500
This project will examine data from National Long-Term Care Surveys from 1982 to 2004 with data for linked Medicare Part B files for the same dates to see if the age trajectory of human mortality and disability processes reaches a plateau or even declines, above age 95.

MAJA MATARIC and CALEB FINCH, University of Southern California, Los Angeles

SOCIALLY ASSISTIVE ROBOTICS FOR THE PHYSICAL AND COGNITIVE HEALTH - $75,000
Socially assistive robotics (SAR) -- autonomous, intelligent, and companionable technology -- has the potential to positively impact the human healthspan. These researchers will develop and test SAR systems that provide individualized physical and cognitive exercises for improving motivation and function, in a socially engaging context, through social (not physical) human-machine interaction.

RICHARD MILLER, University of Michigan, Ann Arbor
STEVEN AUSTAD, University of Texas, San Antonio
JUDITH CAMPISI, Lawrence Berkeley National Laboratory, Berkeley, Calif.
CALEB FINCH, University of Southern California, Los Angeles
LINDA MILLER, Nature Publishing Group, New York City
CHRISTOPHER K. PATIL, Lawrence Berkeley National Laboratory, Berkeley, Calif.
WOODRING ERIK WRIGHT, University of Texas Southwestern Medical Center, Dallas

COMPARATIVE BIOGERONTOLOGY INITIATIVE - $75,000
These researchers will hold two meetings with senior scholars to develop a plan to test hypotheses about biological factors that control lifespan and healthspan, and compare tissues from multiple species of animals. The scholars are pathologists, comparative physiologists, methodologists, statisticians, and experts in the biology of aging.

STEVEN ORZACK, Fresh Pond Research Institute, Cambridge, Mass.
DIDDAHALLY R. GOVINDARAJU, Boston University School of Medicine
SHRIPAD TULJAPURKAR, Stanford University, Stanford, Calif.
TIM COULSON, Imperial College, London

SIGNATURES OF HEALTHSPAN IN HUMANS - $75,000
These researchers will study the causal basis for differences in human healthspan by using "signatures" and health trajectories, and assessing the dynamic nature of heterogeneity of healthspan.

CORINNA ROSS, University of Texas Health Science Center, San Antonio
SARA ESPINOZA, University of Texas, San Antonio

DEVELOPMENT OF A SMALL PRIMATE MODEL OF FRAILTY - $25,000
Frailty has been defined as a wasting syndrome characterized by weight loss, fatigue, weakness, and vulnerability to stressors that predisposes them to increased risk of morbidity and mortality. These researchers will convene a group of experts to explore the development of a small primate model of frailty.

RICHARD SPROTT, The Ellison Medical Foundation, Bethesda, Md.

CREATING A CENTER FOR MODELS FOR HEALTHSPAN RESEARCH - $75,000
There are currently no accepted models for healthspan research. A universally accessible center for model development and maintenance would make an enormous contribution to this essential research. This project is to convene a group of experts to develop guidelines for healthspan models.

CATHERINE WOLKOW, National Institute on Aging Intramural Research Program, Bethesda, Md.
NAN JOKERST, Duke University, Durham, N.C.
CRAIG S. ATWOOD, University of Wisconsin, Madison

ENGINEERING SOLUTIONS TO EXTEND HUMAN HEALTHSPAN - $50,000
New technologies promise to extend healthspan, but their development is hampered by poor communication between engineers and biologists. To speed technology development, these researchers propose to identify specific healthspan research areas that would benefit from engineer-biologist collaborations.

WOODRING WRIGHT, University of Texas Southwestern Medical Center, Dallas

THE COMPARATIVE CELLULAR BIOLOGY OF AGING - $100,000
Mammalian lifespan varies more than fiftyfold. This researcher will establish a resource of normal and immortalized cultured cells from over 30 species to be shared between laboratories to study the comparative cellular biology of aging. The goal is to identify strategies to manipulate the process of limiting human healthspan.

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For more information, visit <www.keckfutures.org> or contact Kimberly Suda-Blake, program director, at 949-721-2270.