

# NIH GUIDE

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**For Grants  
and  
Contracts**

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The NIH Guide announces scientific  
initiatives and provides policy and  
administrative information to indi-  
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be kept informed of opportunities,  
requirements, and changes in extra-  
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DATED ANNOUNCEMENTS (RFPs and RFAs AVAILABLE)

ALZHEIMER'S DISEASE RESEARCH CENTERS

RFA AVAILABLE: 88-AG-01

P.T. 04; K.W. 0715180, 0710010, 0710030

National Institute on Aging

Application Receipt Date: February 18, 1988

Letter of Intent Receipt Date: January 18, 1988

**BACKGROUND**

The National Institute on Aging (NIA) is inviting grant applications from interested institutions to establish centers of excellence devoted to the study of Alzheimer's disease (AD) and related dementing disorders of the aged. This solicitation is to increase the number of existing centers authorized under the Public Health Service Act, (Section 445). An ADRC will be expected to foster the following related functions: conducting multidisciplinary research, training scientists and clinicians, and teaching and/or transferring new information concerning Alzheimer's disease and related disorders.

**ELIGIBILITY**

Institutions eligible for Specialized Center Grants are those at which there are at least three principal investigators with any PHS agency or comparable peer reviewed research project (R01) grants on AD or in related areas, each with at least two years of committed support remaining at the time of application or one or more program project (P01) grants, which also have at least two years of committed support remaining. Institutions that can demonstrate the ability to launch such a research effort are also eligible.

**MECHANISM OF SUPPORT**

The support mechanism for this program will be the traditional NIH grant-in-aid. The award of grants is contingent upon the availability of funds for this purpose. The intent is to fund up to three ADRC grants.

**REVIEW PROCEDURES AND CRITERIA**

Applications received in response to the RFA will be reviewed for scientific and technical merit by an NIA initial review group. Proposals may first receive a preliminary review by a subcommittee of the review panel to establish those applications deemed to be competitive. Proposals judged to be non-competitive or non-responsive will be administratively withdrawn and returned to the applicant with an abbreviated summary noting the major areas of concern. Applications judged to be competitive will be given full review. Following review by the initial review group the applications will be evaluated by the National Advisory Council.

**METHOD OF APPLYING**

The application must be submitted on the 9/86 revision of form PHS 398. The RFA label available in the 9/86 revision of Application Form 398 must be affixed to the bottom of the face page. Failure to use this label could result in delayed processing of the application such that it may not reach the review committee in time for review. Although not mandatory, potential applicants are encouraged to submit to the address indicated below, a non-binding letter of intent to apply by January 18, 1988. Applications must be received by February 18, 1988 for earliest start date of September 30, 1988. If received late, the application will be returned without review.

Applicants should write or phone to obtain the complete RFA, the guidelines for preparing an application properly and to discuss their plans with and direct any other inquiries to:

Associate Director, NNA, NIA, NIH  
Building 31 - Room 5C27  
9000 Rockville Pike  
Bethesda, Maryland 20892  
Telephone: (301) 496-9350

MAMMALIAN DEVELOPMENTAL MUTANTS

RFA AVAILABLE: 88-HD-04

P.T. 34; K.W. 1002002, 1002006, 1002019

National Institute of Child Health and Human Development

APPLICATION RECEIPT DATE: April 12, 1988

The Reproductive Sciences Branch (RSB) and the Genetics and Teratology Branch (GT) of the National Institute of Child Health and Human Development (NICHD) are inviting research grant applications focusing upon the production of new mammalian developmental mutants. Such research should be limited to non-primate mammals, specifically mice. Proposals on other non-primate mammalian species could be considered following investigator discussion with Institute staff prior to submission of applications. This NICHD initiative has important ramifications for both basic science and clinical studies. The information expected from the analysis of these new mutants is essential for further understanding of the underlying principles that direct normal patterns of growth, morphogenesis and differentiation and against which aberrations of these processes can be understood. The goal of this RFA is to fund a group of projects that are primarily devoted to the generation of additional mammalian developmental mutants. It is expected that the latest molecular genetic technologies and the production of chimeric and transgenic animals will be employed to produce opportunistic genetic mutations in lines of mice. These mutations will be useful in subsequent genetic and developmental analyses that cover a wide range of problems in developmental and reproductive biology.

Applications should be submitted on form PHS 398. The RFA label available in the 9/86 revision of application form 398 must be affixed to the bottom of the face page. Failure to use this label could result in delayed processing of your application such that it may not reach the review committee in time for review.

This program will be funded through the individual research project award program. Grant applications will be reviewed at a single competition by an initial review group convened by the NICHD. It is anticipated that eight (8) grants will be awarded contingent upon scientific merit and availability of funds.

Requests for copies of the full RFA should be addressed to either:

Richard J. Tasca, Ph.D.  
Reproductive Sciences Branch  
Center for Population Research  
National Institute of Child  
Health and Human Development  
Landow Building, Room 7C33  
7910 Woodmont Avenue  
Bethesda, Maryland 20892  
Telephone: (301) 496-6516

or Joel M. Schindler, Ph.D.  
Genetics and Teratology  
Branch  
Center for Research for  
Mothers and Children  
National Institute of  
Child Health and Human Development  
Landow Building, Room 7C08  
7910 Woodmont Avenue  
Bethesda, Maryland 20892  
Telephone: (301) 496-5541

BLASTOCYST IMPLANTATION

RFA AVAILABLE: 88-HD-05

P.T. 34; K.W. 0413002, 0785050, 0775020

National Institute of Child Health and Human Development

Application Receipt Date: March 15, 1988

The Reproductive Sciences Branch (RSB) of the Center for Population Research (CPR) of the National Institute of Child Health and Human Development (NICHD), invites research grant applications for a single competition for support of research on blastocyst implantation. Failure of blastocyst implantation even after successful fertilization and subsequent embryonic development is considered to be a major cause of certain types of infertility. Paucity of information on the mechanisms regulating implantation of blastocyst does not allow provision of appropriate treatment to cure or alleviate these types of infertility. The purpose of this special grant program is to encourage the research to elucidate the mechanisms involved in blastocyst implantation, i.e., identification and characterization of embryonic signals to the maternal system and mechanisms involved in the maternal recognition of pregnancy; elucidation of endocrine, paracrine and autocrine mechanisms for preparation

of the endometrium for implantation; establishment of in vitro model systems for studying blastocyst implantation; clarification of mechanisms of decidualization; and immunological mechanisms that allow accommodation of blastocyst by the maternal immune systems. The Reproductive Sciences Branch anticipates that that four (4) applications would be funded as a result of this RFA.

Applications will be reviewed by NIH staff for responsiveness to the RFA, and those submitted in response to this RFA will be reviewed for scientific merit by an initial review group convened by NICHD. The National Advisory Child Health and Human Development Council will review the applications in September 1988.

Research grant applications should be made on Form 398, and labelled in item 2 of the face page "In Response to RFA-HD-88-05, Blastocyst Implantation." The RFA label available in the 9/86 revision of Application Form 398 must be affixed to the bottom of the face page. Failure to use this label could result in delayed processing of your application such that it may not reach the review committee in time for review. The original and four (4) copies should be received by the Division of Research Grants no later than March 15, 1988. Applications should be directed to:

Application Receipt Office, Division of Research Grants  
National Institutes of Health  
Westwood Building, Room 240  
Bethesda, Maryland 20892\*\*

In addition to those applications mailed to the Division of Research Grants, it is very important that two (2) copies of the application be directed to:

Laurance Johnston, Ph.D.  
Scientific Review Program  
National Institute of Child Health and Human Development  
National Institutes of Health  
Landow Building, Room 6C08  
Bethesda, Maryland 20892

For further information and a copy of the RFA, contact the following:

Koji Yoshinaga, Ph.D.  
Reproductive Sciences Branch  
Center for Population Research  
National Institute of Child Health and Human Development  
National Institutes of Health  
Landow Building, Room 7C33  
Bethesda, Maryland 20892  
Telephone: 301/496-6515

#### ONGOING PROGRAM ANNOUNCEMENTS

##### ADAMHA SMALL GRANT PROGRAM

P.T. 34; K.W. 1014002, 0404003, 0404009, 0715095, 0404000, 0710030

Alcohol, Drug Abuse, and Mental Health Administration

The Alcohol, Drug Abuse, and Mental Health Administration announces the availability of a revised Small Grant Announcement. Changes included in this announcement are: announcement of availability of a no-cost extension beyond the year of the original award, clarification of eligibility criteria, clarification of the timing of the review process, an additional review criterion for pilot studies, and updated program contacts. The procedures in this revised announcement will be applicable to all Small Grant Program applications submitted after February 15, 1988. Copies of the revised announcement may be obtained from:

NIAAA Research Program Announcements  
National Clearinghouse for Alcohol and Drug Information  
6000 Executive Boulevard, Suite 402  
Rockville, Maryland 20852  
Telephone: (301) 468-2600

Grants Management Branch  
National Institute on Drug Abuse  
Parklawn Building, Room 10-25  
5600 Fishers Lane  
Rockville, Maryland 20857  
Telephone: (301) 443-6710

Anne Cooley  
Division of Extramural Activities  
National Institute of Mental Health  
Parklawn Building, Room 9-95  
5600 Fishers Lane  
Rockville, Maryland 20857  
Telephone: (301) 443-4673

REVISED SUPPLEMENTAL INSTRUCTIONS FOR PREPARING ADAMHA NEW  
OR COMPETING RESEARCH SCIENTIST DEVELOPMENT/RESEARCH SCIENTIST  
AWARD APPLICATIONS

P.T. 34; K.W. 1014002, 0710030, 0404000

Alcohol, Drug Abuse, and Mental Health Administration

The Alcohol, Drug Abuse, and Mental Health Administration announces the availability of revised Supplemental Instructions for Preparing New and Competing ADAMHA Research Scientist Development/Research Scientist Award (RSDA/RSA) applications. These instructions should be used in preparing RSDA/RSA applications for the February 1, 1988 and future receipt dates. Copies of the revised supplemental instructions may be obtained from:

National Institute on Alcohol Abuse and Alcoholism

National Clearinghouse for Alcohol and Drug Abuse Information  
P.O. Box 2345  
Rockville, Maryland 20852  
Telephone: (301) 468-2600

National Institute on Drug Abuse

Grants Management Officer  
Parklawn Building, Room 10-25  
5600 Fishers Lane  
Rockville, Maryland 20857  
Telephone: (301) 443-6710

National Institute of Mental Health

Grant Awards and Operations Section  
Grants Management Branch  
Parklawn Building, Room 7C-05  
5600 Fishers Lane  
Rockville, Maryland 20857  
Telephone: (301) 443-4414

RESEARCH CAREER AWARDS IN THROMBOSIS

P.T. 34; K.W. 0715040, 0785025

National Heart, Lung, and Blood Institute

The objective of the Research Career Awards in Thrombosis is to support the professional development of individuals who can serve expanding and evolving research, teaching, and clinical requirements in the area of thrombosis and thromboembolic disorders. This announcement emphasizes the need for increased research training in this area and encourages individuals to submit applications for support using the three existing research career development awards sponsored by the NHLBI: Physician Scientist Award (PSA) (K11); Clinical Investigator Award (CIA) (K08); and Research Career Development Award (RCDA) (K04).

Applications submitted in response to this announcement will be brought to the attention of the National Heart, Lung, and Blood Advisory Council and will receive special consideration for support by the NHLBI.

BACKGROUND

Thromboembolic events give rise to serious clinical disease and contribute significantly to the nation's health care burden. Both thrombosis and atherosclerosis are important factors in cardiovascular disease. In 1985 they accounted for almost 1 million deaths. In addition, 153,000 persons in the United States died of cerebrovascular disease, the third leading cause of death in 1985. The economic burden of cardiovascular diseases in 1984 was an estimated \$110 billion. It is further estimated that 6 million episodes of venous thrombosis occur annually, accounting directly for 50,000 hospital

deaths due to pulmonary embolism and contributing to the deaths of another 100,000 patients. In all, the impact of thromboembolism and thromboembolic disorders on mortality and morbidity is impressive.

Substantial progress has been made toward understanding the basic mechanisms operating in thrombosis, the impact of thromboembolic phenomena on organ systems, and the techniques needed to prevent and treat thrombosis. Specific areas of progress include molecular and cellular pathology of thrombosis, biochemistry of coagulation and fibrinolysis, biology of vessel growth, endothelial cell function and vascular reactivity, the blood-vessel interface, and how cellular components interact with the vascular endothelium, thus contributing to the development of thrombosis. Therapeutic options are now readily available for the management of thrombosis and other treatment modalities are under development. Prevention of thrombosis and thromboembolic disorders, development of more effective therapies, and the appropriate choice of treatment demands a thorough understanding of all these facets of the subject.

The major strides which have taken place in basic and clinical understanding of thrombosis suggest that an unprecedented opportunity exists for major improvements in the way patients with these disorders are managed. In addition, the enormous health and economic impact of arterial and venous thrombosis argues strongly for giving this area increased attention. This announcement is prompted by the need to provide increasing numbers of basic and clinical investigators in the area of thrombosis and thromboembolic disorders, so that rapid and effective progress in the area can be made.

Candidates submitting research career development proposals in response to this program announcement should focus on topics such as those listed below:

- o basic research projects that lead to better understanding of mechanisms in thrombosis and thromboembolic disorders;
- o clinical research projects that will improve the detection of high risk patients and prevent thrombosis;
- o applied research projects that lead to improved diagnosis and therapeutic approaches to thrombosis;
- o effective, safe monitoring techniques for patients undergoing antithrombotic therapy; or
- o studies that deal with the logistical, economic, social, and behavioral aspects of thrombosis and thromboembolic disease.

Individual training programs that offer research and career development opportunities in all areas related to thrombosis and thromboembolic disorders are welcomed. While the proposed training should be focused, if candidates do not possess skills in research design and biostatistics, the applicant should consider including these training areas in the plan. The background training of candidates for these research training programs may have been in hematology, cardiology, surgery, orthopedics, radiology, clinical pharmacology, pathology, or epidemiology.

#### MECHANISMS OF SUPPORT

The three support mechanisms for these Research Career Awards in Thrombosis are summarized in this announcement and provide for several levels of career development. Detailed guidelines for each of the three support mechanisms can be obtained from your business office, from the Division of Research Grants, NIH, (301) 496-7441, or from Dr. Fann Harding, Division of Blood Diseases and Resources, (301) 496-1817. Only citizens and noncitizen nationals are eligible for support under these programs.

#### A. PHYSICIAN-SCIENTIST AWARD - PSA (K11)

Provides support through a two-phase award to physicians to undertake 5 years of special study in basic science with a supervised research experience. Newly trained clinicians are encouraged, during Phase I of the award, to develop independent research skills and experience in a fundamental science which can be applied, during Phase II, toward problems in thrombosis and thromboembolic disorders.

- o Award is made to an institution on behalf of a candidate whose primary sponsor is an accomplished basic science investigator who will provide guidance for the entire award period.
- o Selection is by national competition.
- o Training support is for 5 years for full-time effort. Phase I entails 2 or 3 years of creative and detailed basic science learning experience; Phase II entails 2 or 3 years of intensive research activity under general guidance of a qualified sponsor.

- o Salary is up to \$40,000 per year plus fringe benefits for 100 percent effort.
- o During Phase I, up to 10 percent of the primary sponsor's salary and commensurate fringe benefits may be requested.
- o Research and development support is provided up to \$10,000 per year increasing to \$20,000 per year in Phase II.
- o Salary supplementation is encouraged from non-Government sources.
- o Indirect costs of 8 percent of total direct costs, exclusive of tuition, fees, and equipment expenditures, or actual rate, whichever is less, may be requested.
- o Awardees must inform the NIH for each of 5 years following the completion of the award about academic status, publications, and research grants and contracts received.
- o PSA application may not be submitted concurrently with other development awards, such as CIA, RCDA, FIRST Award, or Academic Award.
- o Use application form PHS 398 Rev. 9/86, with special PSA instructions.

B. CLINICAL INVESTIGATOR AWARD - CIA (K08)

Provides 5 years of support to physicians, usually with not less than 3 years of postdoctoral clinical training nor more than 7 years of total postdoctoral clinical and research experience by the time an award is made. The objective is to encourage the development of clinical, basic, and behavioral research interests.

- o Award is made to an institution on behalf of a candidate who has an appropriate sponsor willing to assume responsibility and provide guidance for candidate's research program.
- o Selection is by national competition.
- o Salary is up to \$40,000 per year plus fringe benefits for first year.
- o Research support is provided up to \$10,000 per year.
- o Training period is 5 years for full-time effort.
- o Salary supplementation is allowed from non-Federal funds.
- o Indirect costs of 8 percent of total direct costs or actual rate, whichever is less, may be requested.
- o Awardees must inform the NIH for each of 5 years following the completion of the award about academic status, publications, and research grants and contracts received.
- o CIA application may not be submitted concurrently with other development awards, such as PSA, RCDA, FIRST Award, or Academic Award.
- o Use application form PHS 398 Rev. 9/86, with special CIA instructions.

C. RESEARCH CAREER DEVELOPMENT AWARD - RCDA (K04)

Supports investigators who have demonstrated outstanding research potential. Provides salary only for investigators who normally have 5 years of postdoctoral experience at the time of application, including 2 years of experience as an independent investigator with independent peer-reviewed support. Support must be available to carry out the research project for which the RCDA salary is provided. This award may not substitute for other sources of research support since the objective is to provide relief from responsibilities that prevent full-time (not less than 80% basic, clinical, or behavioral research) pursuit of an academic research career. New investigators and well-established investigators are not eligible for this Award.

- o Candidate is nominated by and an award is made to an institution on behalf of the candidate.



- o Selection is by national competition.
- o Salary is up to \$40,000 per year plus fringe benefits.
- o Award period is 5 years.
- o Salary supplementation is allowed from non-Federal funds.
- o Indirect costs of 8 percent of total direct costs or actual rate, whichever is less, may be requested.
- o RCDA application may be submitted concurrently with a regular research grant application but must not be submitted concurrently with other development awards, such as, PSA, CIA, FIRST Award, or Academic Award.
- o Use application form PHS 398 Rev. 9/86, with RCDA instructions.

#### APPLICATION SUBMISSION AND REVIEW

The receipt dates are the traditional NIH dates: February 1, June 1, and October 1 for Council review October, February, and May, respectively. The PSA and CIA applications will be reviewed by the NHLBI Research Manpower Review Committee. Research Career Development Award applications will be reviewed for scientific merit through the regular NIH peer review system in the Division of Research Grants.

Applications submitted in response to this announcement should be identified by typing P.A./Research Career Awards in Thrombosis on the face page along with the title of your project.

The original and six copies of the application should be mailed to:

Application Receipt Office  
 Division of Research Grants  
 National Institutes of Health  
 Westwood Building, Room 240  
 Bethesda, Maryland 20892\*\*

A copy of the face page of this application should be mailed to:

Fann Harding, Ph.D.  
 National Heart, Lung, and Blood Institute  
 Division of Blood Diseases and Resources  
 Federal Building, Room 5A08  
 National Institutes of Health  
 Bethesda, Maryland 20892  
 Telephone: (301) 496-1817

The programs of the Division of Blood Diseases and Resources of the National Heart, Lung, and Blood Institute are identified in the Catalog of Federal Domestic Assistance, number 13.839. Awards will be made under the authority of the Public Health Service Act, Section 301 (42 USC 241) and administered under PHS grant policies and Federal regulations, most specifically 42 CFR Part 52 and 45 CFR Part 74. This program is not subject to the intergovernmental review requirements of Executive Order 12372, or to Health Systems Agency Review.

#### COGNITIVE FUNCTIONING AND AGING

P.T. 34; K.W. 0710010, 0414005, 1002030, 0414011

National Institute on Aging

#### INTRODUCTION

The National Institute on Aging invites qualified researchers to submit applications on cognitive functioning as it relates to internal and external contextual influences over the middle and later years of life.

This announcement is part of the broad program of the Institute which was established by law in 1974 for the "conduct and support of biomedical, social, and behavioral research and training related to the aging process and the diseases and other special problems and needs of the aged." Under this mandate, this special initiative on Cognitive Functioning and Aging, as one component of the Behavioral and Social Research cluster on Adult Psychological Development, is coordinated with related programs within NIA. In particular, it is coordinated with the complementary program on Neuroscience and Neuropsychology of Aging, which focuses on basic sensory, perceptual and

cognitive processes as they relate directly or indirectly to brain functioning; and also with cognitive programs in the National Institute of Child Health and Development and in the National Institute of Mental Health.

## BACKGROUND

Researchers in cognitive psychology have recently broadened their interest to include not only isolated variables studied one at a time, typically in the laboratory, but also the more complex environmental processes and demands that affect cognitive functioning in natural contexts. With this broadened interest researchers have begun to study early life experiences (such as education and work history) that significantly alter the subsequent capabilities of individuals. They have also begun to consider how particular environments, task-demands, attitudes, and beliefs influence cognitive functioning. Such interests dovetail with the emerging consensus that many of the changes and individual differences in performance seen in the later years of life are the consequence of psychosocial and environmental factors, and not the inevitable result of biological decrement. Useful background sources include Birren, J.E. & Schaie, K.W. (eds.). (1985) Handbook of the Psychology of Aging (2nd ed.). New York, Van Nostrand Reinhold; Schooler, C. & Schaie, K.W. (eds.) (1987). Cognitive Functioning and Social Structure over the Life Course. Norwood, N.J., Ablex; Neisser, U. (1982). Memory Observed. San Francisco, Freeman.

## SPECIFIC OBJECTIVES

The NIA seeks applications for the study of memory, problem solving, decision making, language, expertise, attention, knowledge representation, and other aspects of cognition as these influence and are influenced by internal and external contextual factors over the middle and later years of life. Relevant internal factors include e.g., motivation, affect, sensory limitations, physical health. External factors include e.g., education, early life experiences, physical and social characteristics of the environment at home, in the work place, or in a health care setting. For particular studies, many different combinations of such variables will be appropriate in order to specify the dynamic interconnections between contextual factors and cognitive functioning.

The following areas are illustrative of suitable topics for research. These areas, may be combined in various ways; and applications need not be limited to the topics presented below.

### Individual differences

For over 30 years, the belief that cognitive functioning becomes more variable with increasing age has been accepted with little questioning. Now, however, that belief is being challenged. Do individuals become less like each other as they grow older? Does their momentary performance become less stable?

Research is now needed to specify the influences and conditions which account for patterns of individual difference in cognitive functioning observed in later adulthood. Similarly, a research focus on the dimensions which describe differences in current performance among adults of similar age seems likely to deepen understanding of cognitive functioning.

Examples of questions addressing such individual differences are:

- o To what extent can theoretically derived measures of cognitive functioning (as opposed to psychometrically derived ones) predict age-related variations in learning, work performance, life satisfaction, and morbidity?
- o Are there cross-cultural and cross-ethnic variations in the patterns of adult cognitive development and aging?
- o What are the relative contributions of enduring traits and specific environmental experiences in promoting adult cognitive development and decline?
- o When age differences in variability are reported can they be traced to factors that influence particular cohorts?

### Affective, Sensory and Health-related Influences

Previous studies have shown - without reference to age - that attitudes, motivation and affect influence cognitive functioning: perception, memory, decision making, and language style all appear to be influenced by such noncognitive variables. How does age enter in? By what mechanisms do

age-related changes in such noncognitive variables impact upon cognitive functioning? And conversely, to what extent do age-related differences in cognitive functioning underlie changes in these noncognitive processes?

Other noncognitive processes are also likely to change cognitive functioning. Chronic illness might have a direct impact on cognition, or it may have a less direct impact through forced change in the environment, or in financial circumstances. Changes in motor and sensory function also can impact cognition directly, or through changes in living conditions brought about by the imposed limitations. At the same time, studies of preexisting differences in cognitive functioning may predict reactions to such negative changes, and reveal active and adaptive compensations to more restricted living circumstances.

Some illustrative questions follow.

- o Do particular age-related stressors selectively impair certain cognitive processes but not others?
- o Does age at onset of chronic health problems (e.g., different kinds of arthritis, heart disease) and other stressors alter the effect of such stressors on cognitive functioning?
- o What kinds of compensatory mechanisms develop in individuals who recognize changes for the worse in their own performance?
- o To what extent does an individual's representation of age-stereotyped concepts (e.g., "frail", "old", "middle-aged", "wise", "mellow", "mature") itself change with increasing age and experience?
- o How do age-related attributions by self and others shape performance in memory and decision making tasks?
- o How does amount and quality of emotional support affect cognitive functioning?

#### Contextual Influences in the Immediate Environment

Research is encouraged on the contextual influences that affect age-related patterns of cognitive functioning in particular tasks. A central research concern is the relationship between laboratory measures of a cognitive process and measures of the same process taken in everyday contexts. Although this issue confronts all cognitive psychologists, it is of particular concern to researchers in cognitive aging because older individuals may develop task- and situation-specific skills which are not reflected in currently used laboratory measures and standardized tests.

Examples include:

- o Do age-related differences in memory vary with the content of the events to be remembered as well as with the structure of the memory test?
- o To what extent are age-related differences in cognitive functioning task- or situation-specific?
- o How do age and type of task interact on performance in circumstances requiring sustained or divided attention?
- o What kinds of contextual change can trigger performance changes in older adults, or remove age-related variations in performance?

#### Influences Over the Lifespan

Research proposals are needed which explore the dynamic nature of cognitive functioning and which seek to explain how cumulative experience, life events and transitions are involved. Studies that consider such variables as the complexity of work environment, prior experience in similar tasks, the nature and amount of education, the complexity and nature of the physical environment (e.g., urban versus rural dwelling) and their effects on different domains of cognitive function are encouraged. Related to these studies, experimental research is needed that manipulates variables hypothesized to contribute to the effects of life history on performance. In this way laboratory simulations of real world outcomes can be developed and modified. Other studies might involve short-term longitudinal study of individuals around theoretically-derived critical periods in their lives.

Applications are also sought which investigate the skills and adaptive strategies that emerge from experience. Older and younger individuals might be compared in naturalistic studies on how they approach certain well-defined and familiar tasks. Other possible research topics include:

- o Does the nature of expert performance in different tasks develop and change with age?
- o Do changes in occupational conditions and in the immediate conditions of everyday life have varied effects on cognitive functioning at different ages?
- o How general, and sustained, are the effects on cognitive functioning of different career paths, family conditions and physical environment?
- o Do unplanned or forced changes in living conditions exert a cumulative impact on cognitive functioning with increasing age?
- o Does the nature and amount of recreational activity influence cognitive functioning in later adulthood?

#### Cognitive Intervention

Research on strategies for promoting effective functioning in the middle and later years is a particular focus of this initiative. Intervention studies of the effects of training are of special interest. For example, research needs to be conducted on the effectiveness of different methods of training, on the generalizability and maintenance of any improvement brought about by training, and on the nature of the changes in cognitive processes brought about by different training regimens.

A second aspect of this initiative concerns changes in task and environmental design which can aid older adults and reduce or eliminate age-related differences in performance, e.g., the effects of planned differences in living arrangements on cognitive functioning. Alternatively, studies might be designed to investigate how some new tool or service changes the cognitive functioning and well-being of older individuals. Such studies might be laboratory oriented or carried out in naturalistic settings.

Some illustrative research questions follow:

- o Are older adults better or less able than younger adults to transfer skills learned in one situation to a new situation?
- o What types of intervention ensure that gains in performance can be applied to everyday situations?
- o How do subjects of different ages who are engaged in problem-solving tasks react to imposed obstacles to task solution?
- o To what extent can cognitive interventions improve physical health and psychosocial well-being?
- o How does induced improvement in attitudinal and motivational variables influence cognitive functioning?
- o Are older adults better or less able than younger adults to assess the quality of their own performance in particular tasks?

#### CONCEPTUALIZATION AND METHODOLOGY

Clearly formulated research hypotheses, a carefully specified conceptual framework, and an appropriate research design are all essential. For many studies, the stress on individual differences when coupled with the emphasis on integrating everyday and experiential factors with laboratory studies, will create a need for innovative methodological procedures. While the choice of methodology will vary with the nature of the problem being considered, methodological approaches, used either singly or in combination, might include examining longitudinal data sets which have already been established, as well as accessing archival information collected for other purposes. It is also likely that a wide range of statistical techniques will be found useful, including longitudinal and cohort analyses, ANOVA and MANOVA designs, LISREL/confirmatory factor analysis and event-history analysis.

#### REVIEW CRITERIA AND APPLICATION PROCEDURES

Applications compete on the basis of scientific merit with all other applications before the NIA. The review criteria are the traditional

considerations underlying scientific merit. Researchers considering an application in response to this announcement are strongly encouraged to discuss their project, and the range of grant mechanisms available, with NIA staff in advance of formal submission. This can be done either through a telephone conversation or through a brief letter of intent describing the proposed project and identifying the principal investigator and, when known, other key participants.

Applicants should use the regular research project and program project grant application form (PHS 398), available at the applicant's institutional Application Control Office or from the Office of Grants Inquiries, Division of Research grants, NIH (see address below). In order to expedite the application form's routing within NIH, please (1) check the box on the face sheet of the application indicating that your proposal is in response to this announcement and print (next to the checked box) NIA: COGNITIVE FUNCTIONING AND AGING and (2) enclose a cover letter repeating that your application is in response to this announcement. In assigning applications to NIA or other Institutes, accepted referral guidelines will be followed.

Mail the cover letter and the completed application (with 6 copies) to:

Division of Research Grants  
National Institutes of Health  
Westwood Building - Room 240  
Bethesda, Maryland 20892\*\*  
Telephone: (301) 496-7441

Receipt dates for the Research Project Grant, the Research Program Project Grant and the First Independent Research Support and Transition Award applications are February 1, June 1, and October 1; those for the National Research Service Awards applications are January 10, May 10, and September 10.

Correspondence and inquiries should be directed to NIA staff at:

Behavioral and Social Research National Institute on Aging Attention:  
"Cognitive Functioning and Aging" Building 31C - Room 4C32 Bethesda, Maryland  
20892 Telephone: (301) 496-3136

This program is described in the Catalog of Federal Domestic Assistance No. 13.866, Aging Research. Awards will be made under the authority of the Public Health Service Act, Title III, Section 301 (Public Law 78-410, as amended; 42 USC 241) and administered under PHS grant policies and Federal Regulations 42 CFR Part 52 and 45 CFR Part 74. This program is not subject to Health Systems Agency review.