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DATED ANNOUNCEMENTS (RFPs AND RFAs)

ENDOPHTHALMITIS VITRECTOMY STUDY (EVS): PARTICIPATING CLINICS

RFA AVAILABLE: 89-EY-01

P.T. 34; K.W. 0715100, 075500

National Eye Institute

Application Receipt Date: July 10, 1989

PURPOSE

The National Eye Institute (NEI) invites applications for cooperative agreements to support participating clinics in the Endophthalmitis Vitrectomy Study, a multicenter clinical trial investigating the treatment of endophthalmitis. The NEI estimates that approximately 10-12 clinical centers will be needed in order to meet patient recruitment goals in a timely fashion. Awards to the Chairman, Coordinating Center, and Reading Center will be made in July 1989.

BACKGROUND INFORMATION

Approximately 70 percent of cases of endophthalmitis occur as a direct result of intraocular surgery. The incidence of endophthalmitis occurring after cataract surgery has been generally reported to be in the range of 1 to 4 per 1000 cases. Of specimens obtained from inside the eyes of patients that appear to have bacterial endophthalmitis, approximately 75 percent are culture positive. The actual incidence of bacterial infection may be higher since some causative organisms are difficult to culture or may have been improperly cultured. Little information is available on what can be done to decrease the incidence of infection.

RESEARCH GOALS AND SCOPE

The Endophthalmitis Vitrectomy Study (EVS) is a multicenter, randomized clinical trial designed to compare two plans for the initial treatment of postoperative bacterial endophthalmitis. Several clinical centers will cooperate in enrolling 420 eyes.

Eyes will be randomized to one of two initial treatment groups:

1. (PPV Group) This group will have immediate pars plana vitrectomy, with culture of anterior chamber and vitreous specimens, and injection of intravitreal antibiotics. In this group, the vitreous will be retapped and antibiotics reinjected in eyes found to be doing poorly at 36-60 hours.
2. (IOAB Group) This group will have immediate anterior chamber and vitreous tap/biopsy for culture and intravitreal injection of antibiotics. In this group, initial vitrectomy will be delayed for 36-60 hours and will be performed only on eyes doing poorly.

In addition, all patients will be randomized to receive or not receive intravenous antibiotics.

The primary study endpoints will be visual acuity and clarity of ocular media. Initial endpoint assessment will be made at 3 months and will represent results after "initial" treatment. After this visit, the physician will have an opportunity for up to 6 months to perform procedures to clear late residual media opacification. Final endpoint assessment will occur at 9 months.

MECHANISM OF SUPPORT

Awards will be made as cooperative agreements. These awards entail substantial ongoing interaction between the awardee and NEI staff during performance of the project and will be subject to the same administrative requirements pertaining to all assistance awards of the U.S. Public Health Service.

It is expected that approximately 10-12 awards will be made as a result of this competition. Awards will be made for project periods of four years. The present RFA is for a one-time competition only.

APPLICATION PROCEDURES

All applications submitted in response to this RFA will be reviewed for scientific and technical merit by an ad hoc initial review group that will be convened by the Review and Special Projects Officer, NEI.

Applications must be received by July 10, 1989. Submit applications using Grant Application Form PHS 398, revised 9/86. To identify the application as a response to this RFA, check "YES" on item 2 of the application face page and enter "Endophthalmitis Vitrectomy Study: Clinical Center, RFA 89-EY-01". The RFA label available in the application kit 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.

All inquires and requests for the full text of this RFA should be directed to:

Dr. Richard L. Mowery, Chief
Collaborative Clinical Research Branch
National Eye Institute
Building 31, Room 6A49
9000 Rockville Pike
Bethesda, Maryland 20892
Telephone: (301) 496-5983

No letter of intent is required.

ONGOING PROGRAM ANNOUNCEMENTS

REHABILITATION AND AGING: BIOMEDICAL AND PSYCHOSOCIAL PERSPECTIVES

P.T. 34, CC; K.W. 0710010, 0404000, 0415001, 0415003, 0740070, 0710030

National Institute on Aging

INTRODUCTION

Rehabilitation is both a philosophy and a set of techniques designed to restore an individual's impaired functioning, or to maintain this functioning at the highest possible level. Recently both the theory and the practices of rehabilitation that have been developed primarily for younger disabled persons have begun to be applied to the challenging problems of older people. A combined medical and psychosocial approach to restoring, preserving, and enhancing performance and function in older people is seen as both essential and feasible.

The purpose of this program announcement is to encourage research and research training on the need for and practice of rehabilitation interventions targeted at older persons with a wide range of physical and cognitive disabilities resulting either from disuse, disorders or injuries of the musculoskeletal, cardiovascular or other physiological systems. Further research is needed on biomedical, social and behavioral aspects of rehabilitation as well as the combined application of geriatric and psychosocial strategies. This announcement covers rehabilitation of both newly developed and long-established disabilities in older persons.

GOALS AND SCOPE

The main goal of this announcement is to encourage research on the application of rehabilitation technology and approaches toward the chronic physical and cognitive problems of many older individuals. The announcement is stimulated by the fact that medical rehabilitation has traditionally emphasized the treatment of younger individuals with acute or chronic disabilities while largely neglecting the chronic disabilities afflicting many older persons. Unlike treatment for acute conditions which may result in rapid recovery, rehabilitation for chronic conditions is often slow and based on a succession of small goals, often requiring prolonged life-style changes.

The techniques that have been developed by rehabilitation professionals hold great potential for counteracting the spiraling debilitation that frequently accompanies chronic disuse and disease in older persons. However, it is important to specify how aging processes influence the outcomes of disabilities and the successful (or unsuccessful) responses to particular rehabilitation strategies. A multidisciplinary approach is encouraged involving the collaboration of rehabilitation professionals (e.g. physiatrists, orthopedists, rheumatologists, neurologists, psychologists,

physical therapists, occupational therapists, bioengineers, nurses, social workers and vocational rehabilitation specialists) with geriatricians and with biological, social and behavioral scientists with expertise in aging.

SPECIFIC TOPICS

The NIA invites qualified researchers to submit proposals for research and research training in all areas of rehabilitation as it relates to the health, functioning, independence and quality of life of older persons. The following are illustrative of specific areas of interest; however, applications need not be limited to the topics listed below.

- o Epidemiologic studies on physical disabilities among older persons in relation to needs for rehabilitation services; methods of forecasting needs for rehabilitation services; economics and costs of rehabilitation for disabled older persons.
- o Development of assessment instruments to measure functional abilities at all levels of disability; determination of energy and biomechanical requirements for normal daily functions in older persons.
- o Effects of chronic disease conditions or combinations of conditions in older persons on possibilities for rehabilitation; in particular, effects of osteoarthritis on rehabilitation potential and design of rehabilitation regimens for the older osteoarthritic patient.
- o Development and assessment of methods of memory rehabilitation. Methods for stalling deterioration and promoting function in Alzheimer's disease are of special interest.
- o Potential of rehabilitation techniques for improving functional status of frail older persons in the community or in nursing homes; rehabilitation programs to overcome deconditioning in older persons hospitalized for acute illness and in nursing home residents.
- o Effects of endocrine, metabolic, muscular, neurologic and other physiologic factors on potential for restoration and maintenance of function in older persons, e.g. responsiveness of muscle to growth factors.
- o Analysis of everyday problems associated with aging-related sensory, cognitive, and perceptual-motor impairments, and the identification of specific interventions. The use of microcomputers either as sources of information or prompts, or as teaching instruments.
- o Improved regimens for rehabilitation of stroke and hip fracture for older persons; efficacy of cardiac and pulmonary rehabilitation techniques for older persons; rehabilitation regimens for older persons with peripheral vascular disease.
- o Improved prosthetic, assistive or apparel devices for older persons with functional deficits including balance and gait disorders; the fitting of hearing aids, the implantation of cochlear prostheses, and the use of tactile and other sensory aids; development and testing of a noise-attenuating hearing aid; acceptability of such devices.
- o Effects of drugs widely prescribed to older persons on physical and cognitive capacities and rehabilitation potential; nutritional factors affecting risk of disability and potential for nutritional contributions to the rehabilitation of frail older persons.
- o Clinical trials of therapeutic strategies for sensorineural disorders of smell and taste, such as use of flavor enhancers, special textures and configurations in food.
- o Impact of age and other biomedical and psychosocial factors on the onset of disability, determination of entry into rehabilitation programs and the success of the program; factors influencing whether older people return to work or continue their involvement in other productive behaviors.
- o Rehabilitation attitudes, behaviors, and interactions of patients, families, and rehabilitation professionals; strategies for

increasing patient/family/health professional involvement in the rehabilitation process.

- o Strategies for sustaining long-term compliance to rehabilitation protocols; role of motivation and sense of personal control in rehabilitation; relationship of depression and mood to rehabilitation outcomes; effect of lifestyle and gender on outcomes for rehabilitation.
- o Social factors predicting recovery from, or adjustment to, acute or chronic disabilities; perceptions and definitions of causes, consequences and treatment for disability in later life; antecedents and consequences of different coping styles for dealing with chronic disabilities.

APPLICATION AND REVIEW PROCEDURES

The primary mechanisms for support of this program are:

* Research Grants (R01)

* First Independent Research Support and Transition (FIRST) Awards (R29)

* Career grants, which include:
Research Career Development award (K04)
Clinical Investigator award (K08)

* Training grants (T32)

* Fellowships (F32, F33)

To expedite the application's routing within NIH, under item 2 on the PHS-398 ("Response to Specific Program Announcement") on the face page of the application, type: "NIA: REHABILITATION AND AGING: BIOMEDICAL AND PSYCHOSOCIAL PERSPECTIVES". In assigning applications to NIA or other Institutes, accepted referral guidelines will be followed.

Research project grant (R01 and R29) applications, fellowships (F32, F33) and research career development awards (K04) will be reviewed for scientific and technical merit by an appropriate study section in the Division of Research Grants. All other applications will be reviewed by an appropriate institute review group. Secondary review will be by the appropriate national advisory council.

There are no set-aside funds for these applications. Applications compete on the basis of scientific merit with all other applications before the institute. The review criteria are the traditional considerations underlying scientific merit.

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

The regular research project grant application form (PHS 398 Rev. 9/86) should be used for all of the award types except for the Fellowships (F32, F33) for which form 416-1 (Rev. 7/88) should be used. Application forms are available at the applicant's institutional business office or from:

Office of Grants Inquiries
Division of Research Grants
Westwood Building, Room 449
National Institutes of Health
Bethesda, Maryland 20892
Telephone: (301) 496-7441

Mail the completed application (with 6 copies) to:

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

Receipt dates for the Research Project Grant, Career Grant, and the FIRST award applications are February 1, June 1, and October 1; those for Training Grant and Fellowship applications are January 10, May 10, and September 10.

Correspondence and inquiries should be directed to:

Richard Weindruch, Ph.D.
Geriatrics Branch
National Institute on Aging
Building 31, Room 5C27
Bethesda, Maryland 20892
Telephone: (301) 496-1033

Marcia Ory, Ph.D., M.P.H.
Behavioral and Social Research Program
National Institute on Aging
Building 31, Room 5C32
Bethesda, Maryland 20892
Telephone: (301) 496-3136

Teresa Sluss Radebaugh, Sc.D.
Neuroscience and Neuropsychology of Aging Program
National Institute on Aging
Building 31, Room 5C35
Bethesda, Maryland 20892
Telephone: (301) 496-9350

CLINICAL AND EPIDEMIOLOGICAL RESEARCH ON LYME DISEASE

P.T. 34; K.W. 0785035, 0785055, 0715125, 0715010

National Institute of Arthritis and Musculoskeletal and Skin Diseases

I. PURPOSE

The National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) invites applications for grants to conduct clinical and epidemiological research on Lyme disease (Lyme borreliosis).

II. BACKGROUND

Lyme disease is a spirochetal disease, usually transmitted by the bite of a tick, most often by a nymphal *Ixodes dammini*, when they are prevalent in the Spring. It has become the most common tick-borne illness in the United States. In 1988, about 5,000 new cases of Lyme disease were reported to the Center for Disease Control by 43 states. While this represents a considerable increase over the 2,800 cases reported by 35 states in 1986, the true incidence of new cases is probably several times larger due to considerable underreporting.

Lyme disease was initially called Lyme arthritis when it was first described in the United States in 1976. Soon it was recognized that the condition has both early and late manifestations that involve the skin and the joints, as well as the nervous and cardiovascular systems. It has now been recognized that one or another of the components of the illness has been observed in Europe over the last century.

The first manifestation of Lyme disease is an erythematous skin rash that expands from the site of the tick bite. This lesion, manifested by central clearing and presenting a target-like appearance, is called erythema migrans (formerly erythema chronicum migrans). It is often associated with a flu-like syndrome. Subsequently, a variety of acute and/or chronic signs and symptoms may appear involving the skin and the musculoskeletal, cardiovascular and nervous systems. The responsible spirochete, *Borrelia burgdorferi*, discovered in 1981, has been identified in most tissues and organs of infected hosts.

The clinical picture of Lyme disease, as with other spirochetal diseases, seem to have early, middle and late stages. Lyme disease appears to be responsive to treatment with antibiotics, such as penicillin, erythromycin and the tetracyclines, especially when given early in the course of the illness. Whether or not early antibiotic treatment prevents progression to the late stages of Lyme disease is unclear.

The case definition of Lyme disease has been a problem for both clinicians and epidemiologists studying this condition. The diagnosis of Lyme disease is usually made following the observation of erythema migrans subsequent to a tick bite in an endemic area. In non-endemic areas, supporting serologic

evidence (presence of elevated antibody titers to *B. burgdorferi*) is sought. The sero-diagnosis of Lyme disease is currently fraught with difficulties. There are high percentages of false-negative and false-positive results. Detectable sero-conversion does not appear to occur until several weeks after the infecting tick bite; not all individuals develop detectable antibodies or typical illness. Some people appear to be particularly susceptible to developing the late manifestations of Lyme disease. It has been suggested that immunogenetic determinants may play a role in the development of the persistent arthritis associated with Lyme disease. There is also evidence of overdiagnosis of Lyme disease, especially in endemic areas.

III. RESEARCH OBJECTIVES AND SCOPE

There are many research opportunities to address clinical and epidemiological questions surrounding Lyme disease. The goal of this Program Announcement is to encourage research proposals that address the following questions and other avenues of appropriate investigation.

- o What are the early and late manifestations of Lyme disease with respect to cutaneous, rheumatic, neurologic, and cardiac complications?
- o Are other organ systems involved?
- o Are there discrete stages of Lyme disease?
- o What are the optimal classification criteria for Lyme disease for:
 - a) clinical research; and
 - b) epidemiologic investigations?
- o What are the prevalence and incidence rates:
 - a) across the United States; and
 - b) around the world?
- o Is Lyme disease spreading or just being increasingly recognized?
- o Does Lyme disease vary geographically? If so, what are the reasons for the variation? Are there different seasonal patterns in various climates?
- o What are the risk factors for Lyme disease:
 - a) age
 - b) sex
 - c) race
 - d) occupational factors
 - e) recreational factors?
 - f) others?

IV. MECHANISMS OF SUPPORT AND REVIEW PROCEDURE

Applications considered appropriate responses to this Program Announcement are the traditional research project grant (R01, R29), the Small Business Innovation Research grant (R43) and the postdoctoral fellowship (F32). The specific application forms and kits required in applying for these grants and fellowships are available in the business or grants and contracts offices of most academic and research institutions or may be obtained from:

Office of Grants Inquiries
Division of Research Grants
National Institutes of Health
Westwood Building, Room 449
Bethesda, Maryland 20892
Telephone: (301) 496-7441

Applications in response to this announcement will be reviewed in competition with other applications and in accordance with the usual National Institutes of Health (NIH) peer review procedures. The initial review for scientific and technical merit will be made by an appropriate review group of the Division of Research Grants, NIH. Funding decisions will be based upon relative scientific merit, program relevance, and the availability of appropriated funds.

V. APPLICATION PROCEDURE

Applications will be accepted in accordance with the usual receipt dates for the the different funding mechanisms mentioned in Section IV above.

On the first (face) page, item 2 of the application, the word "Yes" should be checked and the phrase "CLINICAL AND EPIDEMIOLOGICAL RESEARCH ON LYME DISEASE" should be typed in the space provided.

The original and six copies of the application should be sent or delivered to:

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

VI. STAFF CONTACT

Investigators with specific questions are encouraged to contact:

Steven J. Hausman, Ph.D.
Deputy Director, Extramural Program
National Institute of Arthritis and
Musculoskeletal and Skin Diseases
National Institutes of Health
Westwood Building, Room 403
Bethesda, Maryland 20892
Telephone: (301) 496-7495

THE ETIOLOGY AND IMPACT OF ATROPHIC GASTRITIS AND HYPOCHLORHYDRIA IN ADVANCING AGE

P.T. 34, CC; K.W. 0715085, 0785055, 0411005, 0710095, 0710100, 0715035

National Institute on Aging
National Institute of Diabetes and Digestive and Kidney Diseases

BACKGROUND

Hypochlorhydria, or reduced production of stomach acid, is most commonly attributed to atrophic gastritis. The prevalence of both atrophic gastritis of the fundic gland and hypochlorhydria are known to increase with advancing age and occur about equally in men and women. Though relatively few prevalence studies have been conducted in free-living, healthy populations, evidence indicates that atrophic gastritis and accompanying hypochlorhydria may occur in 20 to 30 percent of the older population.

Two histological types of gastritis have been identified: 1) type A which spares the antrum and may be related to autoimmune factors and pernicious anemia, and 2) type B (or nonspecific) antral gastritis with patchy acute and chronic inflammation of the body of the stomach. Hyperplasia of the mucosal cells of the stomach are common in type B atrophic gastritis patients and may be associated with malignant changes (especially in type B). Despite these observations very little is known about the etiology of atrophic gastritis.

Hypochlorhydria predisposes to bacterial colonization of the small intestine, specifically by campylobacter pylori and nontyphoid salmonellosis. In some instances, the infections themselves may also cause hypochlorhydria. Other exogenous factors may also affect stomach pH including low pH foods, fatty acids, and volatile fatty acids produced by gut bacteria.

The production and concentration of a number of gastrointestinal hormones and peptides change in response to hypochlorhydria. The amount of somatostatin and pepsinogen decreases while gastrin concentrations increase. The absolute numbers of IgG, IgM and IgA producing cells also appear to increase in the presence of reduced hydrogen-ion concentrations. Each of these substances has been proposed as a clinical indicator of atrophic gastritis. The ratio of pepsinogen I to pepsinogen II has shown promise as a non-invasive screening tool for prevalence studies.

Hypochlorhydria is known to decrease the absorption and utilization of several essential nutrients. An increased pH decreases the solubility of zinc, copper, nickel, manganese, iron and calcium. Recent studies show that except for citrate salts, the absorption of calcium contained in food is affected far less by reduced stomach acid than are calcium supplements, especially calcium carbonate. Some investigators now think that the decrease in calcium absorption due to hypochlorhydria may adversely affect bone metabolism in susceptible persons. In addition, a rise in stomach pH in conjunction with a decrease in pepsin may encourage the formation of complexes such as the zinc-amino acid complex which decreases the bioavailability of zinc.

Hypochlorhydria also compromises folate and vitamin B12 status. Vitamin B12 depletion and/or loss of intrinsic factor result in pernicious anemia. Patients with this disease usually have circulating intrinsic factor antibody and are at higher risk for other autoimmune diseases. However, the presence of intrinsic factor antibody does not always indicate a B12 deficiency. Although atrophic gastritis decreases the bioavailability of folate, higher than usual folate levels are seen in some patients. These higher levels may be related to an accumulation of 5-methyl tetrahydrofolate in serum due to a vitamin B12 deficiency and/or greater folate synthesis by intestinal flora resulting from bacterial overgrowth secondary to hypochlorhydria.

Atrophic gastritis is the most strongly associated risk factor for stomach cancer. An increase in stomach pH may enhance the formation of carcinogenic nitrosamines and metaplasia of stomach tissue. It is also of note that incidence of ulcers, with high gastric acidity, is inversely related to stomach cancer.

The absorption of drugs may also be reduced by changes in gastric pH. Conversely, drugs such as omeprazol cause hypochlorhydria.

GOALS AND SCOPE

While it is evident that atrophic gastritis and hypochlorhydria can impair the absorption of nutrients and drugs, there is insufficient evidence to judge how much of an impact they make on the health of older persons. The goal of this announcement is to encourage research concerning the incidence, etiology, and clinical significance of these conditions. Since most studies of hypochlorhydria and atrophic gastritis to date have used animal models or clinic populations, the National Institute on Aging (NIA) and the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) are particularly interested in epidemiological studies of the distribution and health impact of hypochlorhydria and atrophic gastritis in the U.S. population, especially in the oldest age groups. These studies should include standardized case definitions geared to measurable end points. They should also employ sensitive and specific screening tools that correlate well with comprehensive histologic examinations.

Research is also solicited on the causes and interactions of hypochlorhydria and atrophic gastritis among older persons and their influence on: gut hormones and peptides, hyperplasia of stomach cells, gastric emptying and bacterial overgrowth. More information is needed on the mechanisms that result in decreased absorption of nutrients and drugs, and what role interactions of nutrients, foods, and bacteria play in these processes.

This research offers a unique opportunity for interdisciplinary collaboration. The NIA and NIDDK encourage integrated proposals from gerontologists, geriatricians, gastroenterologists, nutritionists, epidemiologists and basic scientists.

The NIH urges applicants for grants to give added attention (where feasible and appropriate) to the inclusion of minority groups and/or women in the study populations for research.

SPECIFIC OBJECTIVES

The NIA and NIDDK seek applications to test hypotheses and elucidate mechanisms including, but not limited to, the following general areas:

Studies on the clinical significance and health impact of hypochlorhydria in older persons, including prevalence and incidence and associated morbidity. Because some morbid effects may only develop after many years, longitudinal as well as cross-sectional studies are encouraged.

Classification of the forms of chronic atrophic gastritis in older persons and determination of their major risk factors and causal mechanisms: genetic, infectious, autoimmune, environmental and/or other.

Determination of the role of the intestinal bacterial overgrowth syndrome in the development of macro- and micronutrient depletion in the elderly, including the effects on folate, vitamin B12, calcium, trace metals, and lipids. Also studies of the affects of bacterial overgrowth on the intestinal mucosa.

Identification of the effects of atrophic gastritis and hypochlorhydria on absorption and other age-related factors affecting gastrointestinal absorption of nutrients.

Clarification of the role of hypochlorhydria in altering the action of drugs in the gastrointestinal lumen and drug absorption.

Study of the premalignant characteristics of the stomach in chronic atrophic gastritis and specifically determination of the relationship of cellular and proliferative changes in the stomach to the development of gastric cancer.

MECHANISMS OF SUPPORT

The primary mechanisms of support for this program are:

Research Project Grant (R01)

Program Project Award (P01) (contact NIA prior to submission)

First Award (R29)

Career Awards, which include:

Special Emphasis Research Career Award (K01) in Nutritional and Metabolic Factors in Aging

Research Career Development Award (K04)

Clinical Investigator Award (K08)

Academic Award (K08)

REVIEW PROCEDURES

Applications will be assigned according to NIH referral guidelines and will be evaluated in accordance with the usual NIH peer review procedures, based on scientific merit. Following study section review, the applications will be evaluated by the appropriate National Advisory Council. Awards will be based on available funds.

METHOD OF APPLYING

Applications should be submitted on the PHS form 398 (revised 9/86). Application deadlines are February 1, June 1, and October 1. Under Item 2 - Response to Specific Program Announcement, enter: Etiology and Impact of Atrophic Gastritis and Hypochlorhydria. If your institution does not have NIH research grant application kits, copies may be obtained by writing:

Office of Grants Inquiries
Division of Research Grants
National Institutes of Health
Bethesda, Maryland 20892
Telephone: (301) 496-7441

Forward the original plus 6 copies of the completed application to:

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

INQUIRIES AND CORRESPONDENCE

Potential applicants interested in obtaining further information may contact:

Ann W. Sorenson, Ph.D.
Director, Nutrition and Gastroenterology Program
National Institute on Aging
Building 31, Room 5C27
Bethesda, Maryland 20892
Telephone: (301) 496-1033 or

Frank A. Hamilton, M.D., M.P.H.
Program Director, Gastrointestinal Neuroendocrinology
and Mobility
Division of Digestive Diseases and Nutrition
National Institute of Diabetes and Digestive and Kidney Diseases
Westwood Building, Room 3A15
Bethesda, Maryland 20892
Telephone: (301) 496-7821

SPECIAL INFORMATION - KEYWORD THESAURUS TERMS FOR USE IN THE NIH GUIDE

HEALTH AND SAFETY/MEDICAL SCIENCES/BIOMEDICAL
(A Major Section of the national Keyword Thesaurus)
"+" signifies NIH additions since 9/88 Revision

0705000 ANATOMICAL SYSTEMS/SITES	0414007 Educational Psychology*
0705005 Bone Marrow	0500000 Education*
0705010 Brain	0710050 Electrophysiology
0705015 Cardiovascular System	1002017 Embryology*
0705020 Connective Tissue	0710055 Enzymology
0705025 Digestive System	1002019 Genetics*
0705030 Endocrine System	1002021 Histology*
0705035 Fetus	1002053 Human Development*
0705040 Immune System	0710060 Immunochemistry
0705045 Lymphatic System	0710065 Immunogenetics
0705050 Musculoskeletal System	0710070 Immunology
0705055 Nervous System	0710075 Immunopathology
0705060 Placenta	1004017 Information Science/Systems*
0705065 Respiratory System	0410000 Linguistics/Philology*
0705070 Sensory System	0901026 Management Sciences*
0705075 Urogenital System	0710080 Medicinal Chemistry
	0607010 Microelectronics*
0706000 BIOMEDICAL ENGINEERING	1002027 Microbiology*
0735005 Automated Clinical Analysis*	0413003 Migration*
0706010 Bioelectric Phenomena	1002058 Molecular Genetics*
0706020 Clinical Engineering	1002028 Mutagenics*
0706030 Medical/Diagnostic Imaging	1002029 Mycology*
0706040 Physiological Controls and System	0710085 Neurophysiology
	1002030 Neuroscience*
0710000 DISCIPLINES/FIELDS, MEDICAL/BIOMED	0710090 Nuclear Medicine
0710005 Adolescent Health	0710095 Nutrition/Dietetics
0710010 Aging/Gerontology	1013017 Optics*
1002001 Anatomy*	1002032 Parasitology*
1002052 Animal Development*	0710100 Pharmacology
0201013 Animal Diseases/Pathology*	0710130 Pharmacy
0201016 Animal Genetics/Breeding*	0710103 Photobiology
0201018 Animal Physiology/Morphology*	0414011 Physiological Psychology*
0401001 Anthropology, Cultural/Social*	1002040 Plant Sciences*
1004015 Artificial Intelligence/Cybernetic	1002041 Plant Virology*
1002003 Bacteriology*	1009013 Polymer Science*
0404000 Behavioral/Social Studies/Service	0413004 Population Biology*
0414015 Behavioral/Experimental Psychology	0414012 Psychobiology*
0710013 Biochemical Engineering	0414020 Psychodynamics*
1003002 Biochemistry*	0414000 Psychology*
1003015 Biochemistry, Carbohydrates*	0710105 Psychopathology
1003016 Biochemistry, Lipids*	1013026 Radiation Physics*
1003017 Biochemistry, Nucleic Acid*	0710110 Reproductive Endocrinology
1003018 Biochemistry, Proteins*	0710115 Reproductive Physiology
0710015 Bioengineering	0414014 Social Psychology*
1002000 Biological Sciences*	0417000 Sociology*
1215015 Biology, Behavioral*	0710120 Speech Pathology
1002004 Biology, Cellular*	1010013 Statistics*
1002006 Biology, Developmental/Evolution	1003022 Surface Chemistry*
1002008 Biology, Molecular*	1007009 Toxicology*
1002009 Biology Radiation*	0710125 Transplantation Immunology
0710020 Biomechanics	1002045 Viral Studies (Virology)*
0710030 Biomedical Research, Multidiscipl	1002047 Zoology*
1002012 Biometry*	
1013004 Biophysics*	0715000 DISEASES/MEDICAL PROBLEMS
0710033 Biosystematics	0715005 Accidents
0710035 Biotechnology	0404001 Addiction*
1002013 Botany*	0715006 Adverse Effects
1003019 Catalysis/Kinetics*	0715008 AIDS
1003003 Chemical Dynamics*	0404003 Alcohol/Alcoholism*
1013020 Chemical Physics*	0715010 Arthritis
1003006 Chemical Synthesis*	0715013 Asthma
1003008 Chemistry, Analytical*	0715015 Autoimmunity
0710040 Chemistry, Clinical	0715020 Behavioral Medicine
1003012 Chemistry, Organic*	0715030 Birth/Congenital Defects
1003014 Chemistry, Physical*	0715032 Blood Diseases
0414004 Clinical Psychology*	0715033 Burns
1004000 Computer Science*	0715035 Cancer/Carcinogenesis
1002015 Cytology*	0715040 Cardiovascular Diseases
0413001 Demography*	0715041 Caries
0414006 Developmental Psychology*	0715042 Cerebrovascular Disorders
0710045 Drug Metabolism	0715043 Chronic Fatigue
1002016 Ecology*	0715045 Communicable Diseases

KEYWORD THESAURUS TERMS FOR USE IN THE NIH GUIDE

0715050	Communicative Disorders, Hearing	0725000	ENVIRONMENT
0715055	Communicative Disorders, Speech	1007005	Air Pollution*
0715060	Convulsive Disorders	1007001	Environmental Biology*
0715044	Death/Mortality	1007002	Environmental Chemistry*
0715070	Death, Dying, and Physical Needs	0725005	Environmental Health
0715072	Depression	1007003	Environmental Effects*
0715075	Diabetes	0725010	Health & Safety Standards, Environ
0715080	Diabetic Retinopathy	0725015	Health, Radiation Effects
0715085	Digestive Diseases & Disorders	1007006	Land Pollution*
0404009	Drugs/Drug Abuse*	0725020	Occupational Health and Safety
0715090	Dyslexia	0725025	Poison Control
0715095	Emotional/Mental Health	0715175	Safety*
0715100	Eye Diseases	1007008	Water Pollution*
0715103	Fungal Diseases+	0730000	HEALTH CARE
0715105	Hyperplasia	0730005	Child/Maternal Health
0715110	Hypersensitivity	0730010	Family Health/Planning/Safety
0715115	Hypertension	0730015	Folk Medicine
0715120	Immune System Disorders	0408006	Health Care Economics*
0715026	Inflammation	0730020	Health Care Administration
0715125	Infectious Diseases/Agents	0730025	Health Facilities Studies
0715027	Injury	0730030	Health Insurance
0715129	Mental Disorders	0730035	Health Maintenance Organizations
0715130	Mental Retardation	0730040	Health Manpower/Professions
0715135	Metabolic Diseases	0730045	Health Records
0715136	Muscle Disorders	0730050	Health Services Delivery
0715137	Neonatal Disorders	0730055	Hospices
0715138	Neurological Disorders	0730060	Nursing Homes
0715140	Neuromuscular Disorders	0730065	Patient Care and Education
0715145	Obesity	0730070	Public Health
0715148	Oral Diseases	0730080	Vital Statistics
0715149	Orphan/Rare Diseases+	0735000	INSTRUMENTS/INSTRUMENTATION/DEVICE
0715150	Pain	0735005	Automated Clinical Analysis
0715155	Perinatal Disorders	1004002	Computer Aided Design*
0715157	Periodontal Diseases	1004004	Computer Graphics*
0715160	Pregnancy Disorders	1004005	Computer Modeling*
0715162	Psychosis	1004008	Computer Storage & Retrieval*
0715165	Pulmonary Diseases	1013038	Electron Microscopy*
0715167	Reproductive Disorders	0735015	Instrumentation, Medical
0715170	Rheumatic Diseases	0740000	Intervention, Agents for
0715175	Safety	1002024	Instrumentation, Biological*
0715177	Schizophrenia	1014001	Instrumentation, Scientific*
0715180	Senile Dementia	1004020	Library Automation*
0715182	Sexually Transmitted Diseases	0706030	Medical/Diagnostic Imaging*
0715185	Skin Diseases	1013039	Microscopy*
0715187	Sleep Disorders	1004022	Pattern Recognition*
0404019	Smoking Behavior	1005020	Remote Sensing*
0715190	Stillbirth	1013034	Spectroscopy*
0715195	Stress	0607023	Telemetry*
0715200	Stroke	0607024	Ultrasonic Technology*
0715205	Sudden Infant Death Syndrome	0740000	INTERVENTION, AGENTS FOR
0404020	Suicide	0740005	Antibiotics
0715210	Trauma	0740010	Anticonvulsants
0715215	Tumor Immunology	0740011	Antisera
0715220	Venereal Diseases	0740012	Antivirals
0404023	Violent Behavior*	0740013	Biofeedback
0720000	EDUCATION/INSTRUCTION	0740015	Biological Response Modifiers
0502002	Alcohol Education*	0740018	Chemopreventive Agents
0720005	Biomedical Research Training	0740020	Chemotherapeutic Agents
0503007	Computer Aided Instruction*	0740021	Dosage Forms+
0502009	Dental Health Education*	0740023	Immune Enhancers
0502011	Drug Education*	0740025	Pharmaceuticals
0502000	Educational Instruction Programs*	0740030	Prosthetic Device, Hearing
0507002	Emotionally Disturbed, Education*	0740035	Prosthetic Device, Heart
0507004	Handicapped Education*	0740040	Prosthetic Device, Kidney
0502017	Health and Safety Education*	0740045	Prosthetic Device, Limbs
0503016	Instruction Materials & Practices	0740050	Prosthetic Device, Neural
0720010	Learning Disorders+	0740055	Prosthetic Device, Pancreas
0503018	Learning Motivation*	0740060	Prosthetic Device, Speech
0507005	Learning Disabled Education*	0740065	Prosthetic Device, Vision
0502024	Medical Education*	0740070	Prosthetic Devices (General)
0502027	Nursing Education*	0740075	Vaccine
0502028	Nutrition Education*		
0502045	Pharmacy Education*		

KEYWORD THESAURUS TERMS FOR USE IN THE NIH GUIDE

0745000 INTERVENTION, TYPES OF
 0745003 Chemoprevention
 0745005 Chemotherapy
 0745010 Dental Health & Hygiene
 0745015 Detoxification
 0745020 Diagnosis, Medical
 0745025 Dialysis
 0745027 Disease Prevention+
 0745030 Exercise
 0745032 Gene Therapy+
 0745035 Health Promotion
 0745037 Hyperthermia
 0745040 Immunosuppression
 0745045 Immunotherapy
 0745047 Neural Stimulation
 0745050 Preventive Dentistry
 0745055 Preventive Medicine
 0745060 Psychotherapy
 0745062 Radiotherapy
 0415001 Rehabilitation/Therapy, Emotional
 0415002 Rehabilitation/Therapy, Occupation
 0415003 Rehabilitation/Therapy, Physical
 0745065 Transplantation of Organs
 0745070 Treatment, Medical+

0750000 MATERIALS/PRODUCTS
 0750005 Biomaterials
 0750010 Blood/Blood Products/Transfusions
 0750015 Breast Milk
 0750020 Contraceptives
 0202001 Food Additives*
 1009007 Materials Composite*
 1009008 Materials, Polymeric*
 0750025 Natural Products

0755000 METHODOLOGIES/PROCEDURES
 0755055 Abortion (Induced)
 0755005 Amniocentesis
 0755010 Bioassay
 0755015 Clinical Trial
 1002049 Cloning of Cells*
 1002050 Cloning of Organisms*
 0755018 Data Management/Analysis+
 0755020 Disease Model
 0755025 Drug Design
 0755030 Etiology
 0202002 Food Analysis*
 0755035 Gene Cloning
 0755040 Genetic Manipulation
 0755041 Molecular Cloning+
 0755042 Molecular Probes
 0755045 Nucleic Acid Sequencing
 0413000 Population Studies*
 0755050 Preservation of Organs/Tissue
 0414013 Psychometrics*
 0411005 Risk Factors/Analysis*
 0404021 Surveys & Survey Research*
 0755060 Screening of Drugs/Agents

0760000 MOLECULAR/CELLULAR ENTITIES
 0760002 Biochemical Markers
 0760003 Biological Markers
 0760004 Cell Components+
 0760005 Collagen
 0760010 Endorphins
 0760013 Enzymes
 0760015 Gene Products
 0760020 Growth Factors
 0760025 Hormones
 1215018 Human Genome*
 0760030 Hybridomas
 0760035 Inhibitors
 0760040 Lipoproteins
 0760042 Lymphocytes

0760045 Monoclonal Antibodies
 0760050 Neurotransmitters
 0760053 Nucleic Acids
 0760055 Opiates
 0760060 Peptides
 0760065 Prostaglandins
 0760070 Proteins and Macromolecules
 0760075 Receptors
 0760080 Recombinant DNA
 0760085 Steroids

0765000 NATURAL PROCESSES
 1002048 Biodegradation*
 0765005 Bioenergetics
 0765010 Biosynthesis
 0765012 Drug Resistance+
 0765015 Gene Regulation
 0765020 Metabolism
 0765022 Metabolism, Amino Acid
 0765025 Metabolism, Lipid
 0765030 Metabolism, Mineral
 0765031 Metabolism, Nucleotide
 0765032 Metabolism, Protein
 0765033 Pathogenesis
 0765035 Pathophysiology
 1002042 Reproduction*
 0765040 Wound Healing

0770000 PATIENT/VOLUNTEER CLASSIFICATION
 0403001 Adolescents*
 0403019 Adults*
 0770005 Children (Patients)
 0770010 Handicapped/Disabled
 0770015 Hospitalized Patient
 0403020 Infants*
 0770020 Outpatient
 0403017 Volunteers*

0775000 PHYSIOLOGICAL/DEVELOPMENT PROCESS
 0404004 Child Psychology/Development*
 0414005 Cognitive Development/Process*
 0775005 Hearing
 0413002 Human Reproduction/Fertility*
 0775010 Lactation
 0410001 Language Acquisition & Development
 1002059 Morphogenesis*
 0775015 Physical Growth/Retardation
 1002034 Physiological Processes*
 0775020 Pregnancy
 0775025 Prenatal Factors
 0775030 Teratology
 1002044 Physiology, Vertebrate*
 1002046 Vision*

0780000 RESEARCH RESOURCES
 1002002 Animal Breed. & Facil., Scientific
 0780005 Biological Resources
 0780010 Biomed. Research Resources, Other
 0780015 Cell Lines
 0780017 Chemicals/Materials+
 0780018 Computing Resources+
 1103002 Research Libraries*
 0780020 Tissue Culture
 0780025 Organs+
 0780030 Registries+

1014002 SCIENCE PLANNING/POLICY*
 0201011 Animal Care*
 1014003 Animal Research Policy*
 0783015 Health Planning/Policy
 0783005 Human Subjects Policy
 0783010 Medical Ethics*
 1014004 Ethics/Values in Science & Technol
 1014006 Grants Administration/Policy+

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0785000 SPECIALTIES OF MEDICAL AND ALLIED	0785150 Optometry
0785005 Aerospace Biomedicine	0785155 Orthopedics
0785010 Allergy	0785160 Otorhinolaryngology
0785015 Anesthesiology	0785165 Pathology
0785020 Audiology	0785170 Pediatrics
0785025 Cardiology	0785175 Periodontics
0785030 Chiropractic	0785180 Physical Medicine and Rehab.
0785035 Clinical Medicine, General	0785185 Psychiatry
0785040 Dentistry	0785190 Radiology
0785045 Dermatology	0785195 Rheumatology
0785050 Endocrinology	0785200 Serology
0785055 Epidemiology	0785205 Sports Medicine
0785060 Gastroenterology	0785210 Surgery
0785065 Health, Allied Fields	0785215 Tropical Medicine
0785070 Hematology	0785220 Urology
0785075 Medical Genetics	0201058 Veterinary Medicine*
0785080 Medicine, Family Practice	
0785085 Medicine, Internal	0790000 STRUCTURE/FUNCTION
0785090 Midwifery	1003001 Atomic & Molecular Structure*
0785095 Nephrology	0790005 Membrane Structure/Function
0785100 Neuroanatomy	0790010 Nucleic Acid Structure/Function
0785105 Neuroendocrinology	0790015 Ultrastructure
0785110 Neurology	
0785115 Neuropharmacology	0795000 TECH. ASSESSMENT/TRANSFER/OUTR
0785120 Neurosurgery	0403004 Community/Outreach Programs*
0785125 Nurse Practitioner	0795003 Disease Control+
0785130 Nursing	1016002 Technology Assessment*
0785135 Obstetrics - Gynecology	1016003 Technology Planning/Policy*
0785140 Oncology	1016004 Technology Transfer*
0785145 Ophthalmology	0795005 Therapy Evaluation

KEYWORD THESAURUS PROGRAM TYPES AND TARGET GROUPS

Program Types	Target Group/Beneficiary
01 Analytical Services	AA Children and Youth
02 Capital Construction	BB Disadvantaged (Economically)
04 Centers: Research/Demonstration/Service	CC Elderly
05 Challenge/Fund Raising	DD Handicapped/Disabled
06 Consulting/Visiting Personnel	EE Migrant
08 Cultural Outreach	FF Minorities
12 Demonstration	FA Minorities, Alaskans
14 Development (Institutional/Departmental)	FB Minorities, Asians
16 Dissemination of Information	FC Minorities, Blacks
18 Equipment/Instrumentation	FD Minorities, Hispanics
20 Exhibitions, Collections, Performances	FE Minorities, Native American
22 Fellowships	GG Refugees
23 Financial Aid (Scholarships & Loans)	HH Veterans
24 General Operating Support	II Women
25 Instruction/Curriculum Development	
26 International Exchange Programs	
28 Materials Acquisition (Books, Tapes, etc.)	
30 Preservation/Restoration	
32 Publication	
34 Research	
36 Resources (Shared/Non-Acquisition)	
38 Service Delivery Programs	
40 Student Support (Incl. Dissertation Support)	
42 Symposiums, Conferences, Workshops, Institutes, Seminars	
44 Training/Traineeships/Apprenticeships/Internships	
46 Translations/Editing	
48 Travel	

For additional information, or suggestions, about the use of the Keyword Thesaurus, please contact Dr. John C. James, Division of Research Grants, Westwood Room 109, National Institutes of Health, Bethesda, MD 20892 (BITNET address: ZNS@NIHCU). Several abbreviated forms of RFAs for current, as well as historical, searching and other more complete indexes based on the Thesaurus have been prepared and can be mailed or transmitted electronically to those who are interested. The complete Keyword Thesaurus, keyed to major federal or state government agencies that sponsor a variety of scientific, educational, and cultural programs, may be obtained from: Rodman and Associates, 1950 Stemmons Freeway, Dallas, TX 75207 Tel. 214-746-5345